The Builder.

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The Architectural Publication Society: the "Dictionary of Architecture."

SO regularly have the proceedings of the Architectural Publication Society been noticed in these pages, during the last few years, that our readers scarcely need to be reminded of the high claims which it has upon the support of all classes of persons connected with the art and science of the architect. At the present moment, however, it seems to be desirable that an account of the Society and its operations, somewhat more in detail, should be laid before the public; more especially with reference to an announcement which will be found in our advertisement columns. The great work of the Society is the well-known "Dictionary of Architecture," now in course of publication in parts; and the question raised by the announcement just spoken of is no less than this;—How far future subscribers can be assured against the past publications getting out of print.

The Society was established in 1848 for the purpose of publishing architectural matter generally of a high class; and it received at once the patronage and support of most, if not all indeed, of the leading architects of the country. The scheme of membership was the usual one,—a subscription of one guinea, entitling the subscriber to one copy of the issues for the year.

The commencement of operations consisted in the publication of a succession of miscellaneous original essays by writers of eminence, accompanied by about an equal proportion of lithographic plates of architectural examples, also of miscellaneous character. A very convenient quarto size was selected for letter-press and lithographs alike; and, by the simple expedients of printing the essays separately, and classifying the lithographs in sheets under definite headings, the foundation was laid for a serial work of any magnitude to which it might be found desirable to carry it. Before long the committee of management began to take into serious consideration the possibility of constituting this a cyclopædia of architectural knowledge. The great length to which a complete work of this kind would extend was seen to be an insurmountable obstacle; but so strongly did the necessity for a standard book of general reference become impressed upon the mind of the committee, that a similar project on a smaller scale was forthwith drawn up. This met with approval on every hand; and, since that time, the letter-press issues have been confined to the "Dictionary of Architecture," and the lithographic sheets on the original system have been continued by way of miscellaneous illustrations thereto.

The "Dictionary" has now attained more than half its ultimate bulk, and its pretensions are fairly before the critic. In its long list of contributors are, more or less openly acknowledged, such names as those of the late Sir Charles Barry, R.A., the president of the Institute, Mr. Cockerell, R.A.; Mr. Sydney Smirke, R.A., professor; Mr. Tite, M.P.; Professor Donaldson, Messrs. Ashpitel, Nelson, I'Anson, Garling, J. W. & W. Papworth, Pocock, Burnell, Lockyer, Wylson, Dr. Hughes, Dr. Lübke, and many others of distinguished merit in their several departments. The illustrations, on the other hand, forming a still more bulky aggregate, are exceedingly valuable, and often unique in their character, carefully selected from the best private portfolios in the profession, such as those of Messrs. Ashpitel, Barry, Bell, Burges, Cockerell, Christian, Donaldson, Falkener, and so on, all through the alphabet, to Scott, Smirke, Waring, and Wyatt at the end.

The wide embrace of both "Dictionary" and illustrations, under such auspices, and the Catholicity of spirit and depth of resource exhibited throughout, combined with that almost fastidious system of revision which is known to be the boast of the Committee of Management, give us to expect in this elaborate work a production which shall be abreast of the time. But the best proof of excellence is, perhaps, to be looked for in the actual list of those who purchase the book. Here we have H.R.H. the Prince Consort (three copies); the Royal Academy of Arts, the Institute of France, the Commissioners of her Majesty's Works and Public Buildings, the South Kensington Museum Department of Science and Art, the Bengal College of Engineers, the Athenæum Club of London, &c., together with all the chief architects of the United Kingdom, and a fair sprinkling of other kindred spirits; the last sufficient to indicate the success of the work in its endeavour to be no mere collection of matter for the professional or antiquarian architect, but a more expansive "Dictionary of Architecture," and of all that pertains to it, which shall interest the engineer also, the builder, the amateur, the artist, the student of science, the inquirer into history, topography, biography, and all else, as affecting architecture in its widest sense. That the work is already frequently quoted as a standard authority is well known; and a fact may be mentioned than which nothing could be more interesting or indicative of practical success, namely, that the Art Library at South Kensington has found it necessary to purchase a second copy.

The number of subscribers is somewhat over three hundred; and that this figure has been kept up pretty equally from year to year, in spite of the decease of members, removal, retirement, change of purpose, and other diminishing influences, is encouraging. But one other circumstance, equally satisfactory, although now at length becoming embarrassing, is this,—that new subscribers, as a rule, require to be furnished with complete sets of the back publications, whereas the copies which were issued to the retiring members cannot be re-purchased. In these circumstances the Committee necessarily feel considerable anxiety lest their lists should become practically closed against increase; for they are now obliged to meet the demand for past issues by the reply that the offer of full price for these, which has for some time been a standing rule, and even the offer of a premium which has sometimes been made, fail to meet any longer with response.

As we are given to understand, the proposal which is now made to the profession is as follows: Of the letter-press a moderately-sufficient stock is in hand. As regards the illustrations, where there is no such stock, the lithographs are as yet not effaced. The Committee are prepared to renew the stock of illustrations so as to meet future demands, provided the public will come forward with a number of additional subscribers at once, sufficient to provide for the mere outlay. For this purpose a modest augmentation of members will be enough; and it would seem odd if the Society, even by the personal influence of its three hundred present members, is not able to secure their recruits without much trouble. It is, moreover, understood that the back payments are not expected to be made up in full on entrance, but may be made according to convenience. Another liberal arrangement is, that a subscriber is to be allowed to take the Dictionary alone, if he can dispense, as many may, with the lithographs; these being not plates of reference in any case (woodcuts being inserted in the text), but altogether separable matter.

We have frequently pointed out, as we do once again, that in societies of this kind the more subscribers there are the more does every individual receive for his money; and we hope, especially in view of the liberal mode of dealing which appears to actuate the committee, that instead of an extra score of members the society may now have an extra hundred. It is to be borne in mind that the chance which is often reckoned upon of obtaining, at the close of a serial, complete copies at a discount price is here very small indeed, inasmuch as the dealers are already asking a premium for loose and even soiled numbers which casually come into their hands. On the contrary, it is an additional inducement to new subscribers to be reminded that the small stock of surplus copies which is kept up is in fact a constantly increasing *capital*, of which the society will one day reap the benefit. In fact, as matter of account, we are informed that the contemplated proceeding of completing this stock in the imperfect portions will place it even now at a value of probably 1,500*l*.

It need scarcely be said that the management of the society is gratuitous, and the expense of the publications closely cared for. The number of actively interested officers is also large, embracing no fewer than thirty-two influential metropolitan architects as the committee, with forty-one provincial colleagues as local secretaries. The society has a habitation in the architectural societies' house in Conduit-street; and the administration of its affairs is more particularly in the hands of Mr. Wyatt Papworth, as honorary secretary for the "Dictionary;" of Mr. Octavius Hansard for the illustrations; and Mr. Arthur Cates for correspondence; and we are requested to state that the last-named gentleman will be always happy to answer any questions, or to entertain any proposal bearing upon the scheme above spoken of, with regard to which we once more wish the committee all the success that is due to a straightforward and practicable project, of which the object is a public benefit and the motive unaffected and practical.

This is a matter that concerns architecture as well as architects, and we make our appeal prominent and emphatic.

LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY, BY MR. SYDNEY SMIRKE, R.A.

COLOUR ON EXTERIORS.

ON the 24th ult., Professor Smirke delivered the following lecture, the first of the present course:—

In a former lecture I addressed to you some observations on the application of colour to the purposes of internal decoration. I propose this evening to pursue the subject of colour as applied to architecture, confining, however, my views on the present occasion to its use on the exterior of buildings.

It is very obvious that there is, in many respects, so wide a difference between the requirements and capabilities of external and internal decorative architecture, that very different rules must guide us, and very different circumstances have to be taken into consideration. Within the four walls of a room we can generally command our colours; we need introduce no inconvenient or discordant combinations; and although there may be, and undoubtedly are, various difficulties to contend with, it may be said that they are not insurmountable, inasmuch as the room is at our own command; and, if we introduce discords, or otherwise unpleasing effects, it is, generally speaking, our own fault. But it is not so in the case of exterior architecture: there the difficulties are real: we have to design the colouring of our building with reference to circumstances over which we have no control whatever.

Our building may be required to be placed in juxtaposition with other buildings or objects already existing which we may not disturb; or it may be surrounded by natural objects to which our building must, per force, to some extent, be in subjection, or at least on terms of amity and co-operation. Moreover, colour is closely allied to light. Within a room the light is strictly under

our control: we can subdue it to any extent: we can render its influence as partial as we may think proper, and cause it to enter the room in whatever direction it may be expedient that it should enter. Quite otherwise is it out of doors. The exterior of our building is exposed to the searching light of day; and the sun's rays will come, in whatever way, and with whatever intensity they please, upon the surface of our work. Hence, therefore, it is, that we find ourselves compelled to be guided by very different principles in the two cases.

It was on this account that the observations which I had the honour to make to you two years ago were expressly, and almost exclusively, confined to the application of colour to the interior of buildings.

I have said that colour is nearly allied to light: hence bright colours seem to harmonize especially with a bright light, and brilliant colours have ever been regarded as congenial to brilliant climates. This remark is no doubt trite: it must have occurred to almost every observant person, that most of the productions of nature, in those climates where the sun is powerful, are distinguished by more intense colouring than elsewhere. In an ornithological collection we are almost able to pronounce with some precision, whether a bird is a native of an Arctic, temperate, or intertropical climate, by applying to it the test afforded by the relative brilliancy of its plumage; and the same would seem to apply to the furs of other animals. We see how colour graduates, from the intense markings on the tiger's back to the dingy, or even colourless, coverings of the animals living in Polar regions. No doubt there are exceptions; but the general prevalence of this apparently fundamental law cannot escape our observation, or be attributable to mere caprice or accident. I would not dwell on this law of nature did it not appear to me to be well calculated to throw light on the special subject of my present observation.

In the regions of the East men's eyes are early educated to the appreciation of colour, by having natural colours constantly before them; whilst amidst the grey mists of the North we may, it is true, learn to appreciate colour; but the education must be artificial, and hence, perhaps, it is that when we do indulge in colour, we are apt to run into some preternatural, and even painful, excesses; and, prompted rather by fashion than by instinctive or natural feeling, our fancy becomes capricious and ill-regulated, rushing from whitewash to polychromatic ebriety.

This is not as it should be. If we are not by nature endowed with a delicate perception of the niceties of colour, we should, at least, learn to understand the principles which regulate it; for colour, like a sharp weapon, needs to be used with that caution and dexterity which knowledge and experience alone can give.

But I am, perhaps, prematurely entering into my subject, before urging on your attention those principles which, I think, should regulate us in our attempts to avail ourselves of those beauties which our art can certainly derive from a judicious and well understood use of colours. Before, I say, we descend into a detailed consideration of these principles, we should, I think, look back cursorily over the works of our predecessors; review the progress of the art of applying colour as a means of exterior architectural decoration; and take a glance at the experiences and practice of other times and climates.

In Egypt, the cradle of art, it is beyond dispute that brilliant colouring pervaded their architecture. Egyptian artists used profusely a few positive colours, for they had not learnt to derive pleasure from those niceties which more advanced art delighted in.

The uneducated eye, like the eye of a child, is sure to be captivated by brilliant colouring. Hence we might fairly expect, *à priori*, that such would be the character of the colouring adopted among those earlier pioneers of art who peopled the East. I do not think that it will be a profitable or an appropriate topic of inquiry here—to investigate the principles which guided the Egyptian and Assyrian builders,—if, indeed, principles they really had to guide them. It seems probable that motives of taste regulated their choice of colours less than certain considerations of a religious character; and these involve archæological inquiries which are quite foreign to our business here.

When, however, we advance to the period of Greek art, we are bound to believe that art (although, no doubt, still influenced by the traditions of their predecessors in civilization), was allowed more freedom, and that the Greek artist sought to gratify the natural good taste of his countrymen, liberated from mere conventional forms, and disregarding prescribed dogmas in the adoption of colour. Unfortunately, time has spared us so few indications of original colour actually existing, that modern artists and art-writers have been tempted, by the paucity of ascertained facts, to indulge in theories of colour not based on any sound authority; and the somewhat vague and accidental expressions of ancient authors have been called in aid to supply the place of the more exact and satisfactory information to be derived from actual observation.

Without embarrassing ourselves with the very discordant views of the different archæologists who have written on this subject—and the subject of ancient polychromy has, indeed, been most fruitful of controversy—I will content myself with simply stating the convictions which I have myself arrived at.

My own belief is, that the external architecture of the Greeks was enlivened by a considerable amount of strong colour in the details, and that even the broad surfaces were occasionally, perhaps often, stained with fainter tints. That the details were so enlivened we have the undeniable evidence of surviving fragments; and we need go no further than our own national Museum for such evidence. In the Xanthian examples the late Sir Charles Fellowes has satisfied us that the tombs of early Greek workmanship were profusely painted. Colour was traceable when these remains were first explored; although the climate of this country has, perhaps, effaced in most cases the indications of it. Nor can it be with truth in all cases asserted that the colours observed might have been the daubing of later and degenerate days; for an example occurs in the British Museum where the sofite panelling has had its enrichments marked in preparatory outline, to be filled in at a future time with colouring, of which some accident seems to have occurred to prevent the completion.

That the general surfaces were stained occasionally, perhaps often, we may infer from certain expressions that have been detected in ancient writers, and from the fact that many of the most authentic, and some even of the purest examples, of Greek architecture were executed in a coarse limestone, coated over with a thin covering of stucco, the crude whiteness of which would not have been tolerable, and which, therefore, we may very reasonably and safely assume to have been subdued by at least a certain amount of colour. But it by no means necessarily follows that, because colour was, in such cases, always resorted to, it was, therefore, habitually applied to all architecture, and that the beautiful crystalline Parian marbles, so highly prized by the Greeks themselves for their purity and transparency, were thus habitually discoloured. Although we know well that early Greek art was greatly influenced by Egyptian and Assyrian practices, leading to what we may now regard as an excessive use of colour, I can with difficulty bring myself to believe that the fine æsthetic sensibility of the Greeks could ever have been reconciled, by any amount of respect for their predecessors in art, to the destruction of the pure translucency and to the obliteration of the delicate natural tints of their marbles, by painting over the columns and broad surfaces of their buildings with strong opaque reds or blues, as some would wish us to believe. Upon the whole, I should say that the wide diversity of opinion among the writers who have discussed this difficult subject of Greek polychromy is somewhat disheartening to those who are simply in search of the truth; but, perhaps, encouraging to those who, whilst reverencing Greek artists, are shocked at the rank colouring attributed to them, and would fain disbelieve that such outrages were ever committed, and hope that they were, in their best days, more temperate in the use of colour than some of the able advocates of glypto-chromatism* are wont to represent them to have been.

So destructible and evanescent as all artificial and superficial colouring is, it is not to be wondered at that we are as much at a loss for reviving Roman examples of exterior colouring as we are of Greek; but we may very safely assume that the love of ornament and splendour which especially distinguished Roman imperial art is more likely to have led to an increased than to a diminished resort to colour on the exterior of their buildings.

It was at this period that the use of marbles of various natural colours dispensed with artificial pigments. Even as early as the date of the Greek remains at Halicarnassus, there is strong evidence that the natural diversities of colour in the material were resorted to as a means of giving variety to exterior architecture.

That such was the case may be inferred from the fact that the blocks of marble recently obtained in great abundance by Mr. Newton from the ruins of Halicarnassus differ considerably in colour. Some are as pure and as white as the Parian itself: other blocks are of a dark slate colour, and there are various intermediate hues. How these variously-coloured marbles were arranged with reference to each other it may now be very difficult to ascertain; but the effect that would unavoidably result from using them indiscriminately would be so bad that it is not to be supposed that any Greek artists could have so employed them; and we are thus inevitably led to the conclusion that the arrangement of these light and dark coloured marbles was probably made in conformity with some principle or method adapted to impart variety of effect to the architecture.

At Rome, so great became the passion for coloured marbles, that Ovid says, "Decrescunt effosso marmore montes;" and artificial processes, therefore, for staining marbles were adopted for the sake of giving them a more ornamental character, processes which lapidaries of the present day are known to practise.

Indeed, the use of coloured marble became so universal that Pliny seems to hint that the known available sources of ornamental marble were becoming exhausted; and to this he attributes the invention of marbling, although it seems more likely that this fictitious splendour was one of the significant signs of the decay of taste in the empire. It was at this period, also, that the practice of veneering stone and brick with thin laminæ of marble took its rise. In the portico of Octavia, in Rome, I observed the exterior face of the brickwork lined with slabs of marble, scarcely two inches thick; but, in the great theatre in Taormina, in Sicily, I found marble veneering executed with really wonderful dexterity; the thickness being scarcely more than that of ordinary card. The dexterity, indeed, which this veneering required in its execution affords strong ground of presumption that the practice was common.

In what way and to what extent the architecture of the later Roman empire was affected by the contemporary style of design prevalent in the East is a question of undoubted interest; but it is one upon which those who have treated on the subject seem to entertain by no means clear views; a difficulty arising perhaps in great measure from the uncertainty that hangs over the dates of early eastern buildings. But it would hardly be germane to the subjects of these lectures to enter into inquiries so exclusively historical.

It may suffice to say that, either through the fusion of the decaying Classic style with some other style that may have pre-existed, owing its origin to Oriental artists; or through the direct changes effected in the Roman manner; when the task of building fell into the hands of the predominant races of the East, even without assuming the influence of any pre-existing style; certain it is that a very readily distinguishable change took place; and one of the most marked characteristics of that change was the extended application of colour to architecture.

The use of mosaic work is especially a marked feature in this new phase of art. Although this work was the invention of an earlier age and was very largely used by the Roman architects in pavements, I am not aware of any evidence of the application of this species of work being applied as a mural decoration in any building of positively Classic date; and I presume that this latter use of it may be confidently regarded as originating in the Byzantine school. The practice of inlaying and panelling marbles as an incrustation on the surface of walls is also another very prevalent mode of ornamentation marking the period; much resorted to, no doubt, by the Romans even in the best periods of the empire, but received in the Byzantine school with particular favour, from the facilities it afforded of coloured enrichment, in which that school, as we have seen, so greatly excelled.

I need not remind you that Byzantium, during the least cultivated periods of European history, was the sole asylum of the arts; and it was thence that the earliest rays of a revival dawned on Western Europe. Italy, Sicily, and Spain were the first countries to catch these rays. Hence it is that we there find the earliest developments of this new feature of architectural ornament. The new buildings of Venice and Pisa became resplendent with coloured marbles, both internally and externally applied. Then, too, arose that parti-

* I have been reprimanded, since the delivery of the Lecture, by a very distinguished art-scholar, for coining this word: I may, perhaps, have been misled by Bavarian authority into using the term; for which, in deference to him, I would substitute αγαλματοχρωσις, or statue-colouring."—S. S.

coloured system of decoration which, in our ceaseless aspirations after some new beauty, has of late found some favour in our eyes. The Duomo at Venice is a very early and remarkable example of the adaptation of coloured materials to external architecture. The shafts of the small pillars are of various coloured marbles, whilst incrustations of porphyry and other precious materials of like nature enrich the surface of many parts of the building.

Florence affords many notable examples; and, in Giotto's celebrated campanile, the practice of panelling and otherwise intermixing variously coloured stones was extensively adopted, and treated with admirable taste and skill.

Indeed, throughout this period of Mediæval architecture, in Italy the practice prevailed of building in courses of coloured masonry; and it became, in truth, a characteristic feature in the buildings of that age in Italy.

Doubtless, these alternating courses of coloured stones came to Italy from the East; for they have there been a passion; originating, perhaps, in the deep-seated love of colour which marks Oriental taste.

There is no denying the extremely pleasing effect of many of the Mahommedan buildings so ornamented; and it affords a striking instance of the simple means by which beauty may be attained.

Whether the motive was purely æsthetic, or whether the occasional courses of coloured stonework had their origin to any extent in some constructive requirements, we have, perhaps, now no means of determining. The latter supposition seems not altogether improbable, at least in Italy. The green marble from Polcevera, in the north of Italy, is an extremely hard substance, and the occasional introduction of courses of it, properly cramped together, would, no doubt, form a useful tie, and contribute much to the stability of a wall.

It is, however, to be remarked that, even in Italy, this mode of construction was only of local prevalence. It is far more frequent in the north and middle of that peninsula than in the south. Instances in other parts of Europe are comparatively more rare; and, as far as my knowledge extends, very few instances of regularly banded or striped masonry, where different coloured stones are used in alternating courses, occur in our own country.

The nearest approach to external polychromy in England is, perhaps, the intermixture of coloured stone and square flints, which occurs so frequently in the ecclesiastical architecture of the eastern counties, and by which a pleasing variety of tone, if not of colour, is often produced.

There is no reason to believe that external colouring, whether by the use of naturally-coloured materials or by superficial painting, was ever extensively practised in this country during the best periods of Mediæval art. Perhaps the most usual application of the practice was in the shafts of columns: a blank spandril or gable was occasionally relieved by a coloured panel; but this occurs rarely, sculpture being ever considered as the readiest resource whenever a blank space is to be lightened or an enhancement of the effect is desired.

But probably in no country on the Continent has the mode of producing a rich effect of colour, by the use of bricks and stone intermixed, been better understood, or more effectively carried out, than in England during the Tudor period.

In the wide, alluvial tracts of Germany, where the use of bricks was earlier introduced than in England, quite as widely disseminated, and as generally practised; I have not myself seen, nor have I been able to ascertain, that others have met with, that regular and systematic use of the interlaced courses of dark bricks on a red brick ground with which we in England are so familiar, and which so admirably attains the object of relieving a plain surface of wall without labour or effort; at the same time lowering and qualifying the general tone of colour in a highly picturesque manner.

It is not unworthy of note that at a period when in England we were thus struggling to relieve the monotony of red bricks, our more advanced and ingenious contemporaries in Italy were stuccoing the surfaces of their palaces to receive fresco painting, and often employing the very highest available art upon the plain surfaces so obtained. Vasari relates many instances of this employment of the painter's art; and it seems highly illustrative of the universal prevalence of a taste for painting in that country when we find men like Perino del Vaga, Garofolo, Gherardi, Bramante, and very many others I might name, zealously engaged in painting historical subjects, on a colossal scale, upon the exterior surfaces of ordinary street architecture.

They could not but have been perfectly conscious of the perishable nature of their workmanship; but it was enough for them that the all-prevailing admiration for art was gratified, whilst they found a wide scope for the exercise of their fertile invention and for the display of their admirable powers.

You are no doubt well aware of the great efforts that have for some time past been made in Germany to revive this mode of exterior decoration.

The whole façade of the newly-erected picture-gallery at Munich is converted into one vast historical picture: the figures are so colossal, that in order to appreciate them one needs to retire to the remotest distance that the surrounding buildings will admit of. That veracious geographer, Leno Gulliver, tells us of a book he met with in his travels, so large that he had to erect a scaffold in front of it to read its pages. So in this truly great work at Munich we have to take a considerable walk in order to examine the opposite limits of the picture.

But without reference to such extreme cases, I leave it for those who practise the sister art to determine how far historical painting is rightly applied as a mural decoration in the open air. I am disposed to think that the practice will not spread very widely. It seems to me calculated to lead to the degradation of art; for what artist is there, at least in these degenerate days, and in the inclement atmosphere of Northern Europe, who would not feel the warmth of his genius chilled by the reflection that his works could expect only an ephemeral celebrity. Exposed to the vicissitudes of climate, such works could hardly live to be fully appreciated before they must perish. Such, certainly, has been the fate of nearly all, if not of all, the external frescoes of the great masters of the fifteenth and sixteenth centuries. But so great was the wealth of genius in the palmy days of Italian art, that painters were willing to waste their brightest thoughts, and bestow the exquisite products of their art on the mere pageants of a day.

But somewhat before the bright period I have referred to, the love of coloured architecture in Italy had found another and more legitimate development.

In the fifteenth century was introduced, originally derived, no doubt, from the East, a new manufacture by which a far greater permanency could be imparted to colours. In the alluvial plains of [illegible] arose a passion for glazed terra-cotta work; [illegible] did not disdain to impart the Promethean fire; in this instance, also, the most gifted artists of their [illegible] these fictile productions; gives 1393 as the date of its introduction; and the eminent names of Della Robbia, and even Raffaelle, are identified with its cultivation.

Though limited at first to small fictile works, such as tazzas, ewers, and the like, it was not long before artists found that the art was applicable to the nobler purposes of architecture. Friezes, panels, and many of the minor features of architectural composition, were thus enriched by colours of the most durable nature.

There are, in fact, few substances less perishable and less liable to injury from chemical and atmospheric action than the vitreous glaze on this terra-cotta work. There are many interesting [illegible] of glazed fayence ware of a green [illegible] remains in the British colour among the Assyrian [illegible] in Colnaghi's Museum. Those from the north-west palace at Nimrud, and from Koyunjik, date, according to the trustworthy authority of Mr. Birch, as far back as the year 750 B.C.

There are also many examples of glazed ware from Babylonia, especially I would name the glazed coffins from Warka: these Mr. Birch is inclined to assign to the days of Nebuchadnezzar. You will find none of these specimens materially affected, except by external violence.

The Italian artists of the quatro-cento period highly appreciated this material, and used it in their buildings with admirable effect, as at Alberti's Church, at Rimini, and elsewhere. Its application, however, declined in the sixteenth century,—a fact, perhaps, mainly attributable to the more general and closer adherence to Classical forms, which did not lend themselves so readily to terra-cotta as to stone. Much also may be ascribed to the introduction, at that period, of external stucco work.

Coloured terra-cotta never attained to much favour in this country. We see some few examples of glazed earthenware in heraldic shields, and other details on the exterior of Wolsey's portion of Hampton Court Palace, and a few other scattered examples may be met with; but it would appear that the gloominess of our English climate and the noxious influence of our smoke are not favourable to the cultivation of taste for external coloured decorations, and cause timidity in its application. I would by no means advocate an extravagant use of this vitreous manufacture: such excess would be as little in keeping with the grave and sober character of the English on the subject of art, as it would be unsuitable to our climate; yet glazed and coloured terra-cotta work deserves the attention of every English architect. Its remarkable permanence is a most valuable quality; and its capability of resisting the disfiguring effects of soot seems strongly to recommend it to favour in our larger towns.

Reverting now to the brilliant quatro-centro period of Italy, from whence I had deviated in order to sketch the progress of terra-cotta as a building material, I should remind you that it was not only in the use of this artificial material that the love of colour in architecture showed itself in Italy. The use, in the time of Giotto, and still earlier, of coloured marbles in the enrichment of external architecture, to which I have already adverted, seems to have revived in the fifteenth century, and especially in the north of Italy. In Venice we find few buildings of that period which are not characterized by a profusion of coloured marble panels, friezes, medallions, and the like. Neglect and exposure have contributed seriously to efface these beautiful decorations; but enough remains to enable us to form some conception of the gorgeous effect of the Canal Grande and of the Piazza di S. Marco in the fifteenth century; adorned as they were by the fresh glow of colours in the stately structures then newly erected, as well as by the more subdued embellishment of the rich marbles, mosaics, and tesselations of the earlier buildings of that city. When we recall to our imagination these gorgeous buildings; enlivened as they were by the rich costumes which figure in the paintings of Giorgione and Veronese; the brocaded hangings, the gay standards, and gilded metal-work which must have then everywhere met the eye; I believe we shall all admit, without a doubt, that no city in the world, at any period of its history, ever offered such a sumptuous feast of colour as Venice, in those her palmiest days.

No doubt many of these marble insertions were the spoils of war in the East; for specimens of the deep red granite, and other precious materials, may be found among them, which are not known to occur in any European locality; so that, as in the case of Rome, the pride of conquest, mixed conduced to promote the [illegible] of Venetian artists, architecture. These panelling [illegible] of colour in their fell into disuse in the progress [illegible] wever, gradually strictly architectural forms came [illegible] of art. More columnar architecture becoming all [illegible] prevail; and the opportunities for the use of colour [illegible] universal, became necessarily restricted to the [illegible] marbles entablatures and shafts of columns: even [illegible] of soon ceased to be common in exterior works.

It cannot be denied that there is, in the nature of most coloured marbles, an inherent defect which may have largely contributed to bring it into disuse in situations exposed to the external atmosphere. The colours of most marbles depend for their depth of tone and richness of effect on their polish; and that polish is sure, sooner or later, to be destroyed by exposure to damp air. This is not the case with respect to granite, of which silex forms so large a component part; nor perhaps to serpentine; but the polished surface of probably no [illegible] however compact and however crystallized, will long [illegible] and somewhat limestone, [illegible] resist the effects of exposure.

I have now, in a slight, hasty, [illegible] account [illegible] of the use of coloured materials in exterior architecture. It disjointed manner, sketched the history, [illegible] remains for me now to consider the principles which, I think, should guide us in their use.

This consideration is an important one at the present day; for a fashion—I might almost say a passion—is growing up among us for indulging in this kind of embelliahment.

Of all novelties, especially in matters that come within the dominion of taste, the tendency is to degenerate into extravagance and excess. A speculative chemist, or an inventive manufacturer, has no sooner devised some new modification of colour, than the world of fashion becomes steeped in the favourite dye, till our eyes are tired of the novelty.

The leaders of *ton* in the fourteenth century bethought them to prolong the toe of their shoes to an inordinate length. The servile crowd of imitators followed: the passion grew with the growth of this superfluous appendage, till we find

that by the middle of that century the toes of any well-dressed gentleman were tied up to his waistband.

Again, some unsightly excrescence is supposed to have suggested to the coiffeur of Louis XIV. a structure of artificial locks; and not many years had elapsed after its adoption before the heads and shoulders of all Christendom were oppressed by the superabundant load of adscititious hair.

It seems an instinct of the human mind, when a new enjoyment or fresh object of admiration is found, to exceed the limits of moderation in the indulgence of it.

Whitewashing was once a passion, especially among churchwardens; and the rigid saints and painted purgatories with which it had pleased our ancestors, before the Reformation, to cover their walls, for the moral improvement of a staring but unreading generation, all became obliterated by the clerical wash of lime-white; and the facility with which that dazzling production could be yearly renewed, and the economical cleanliness which it introduced, seemed to favour its perpetuation; but whitewash had its long day, and lost its hold on the public favour; and there is every prospect that we are now about to enter upon the reign of intense polychromatism.

It behoves us, therefore, to be very careful that this new-fledged zeal shall be kept, more especially in the exterior of our buildings, within a just and reasonable restraint.

Let us not lose sight of the principles that should guide us, and let us be guarded in the application of those principles; remembering well how often the worst of all things is the corruption of the best, and that the idol of yesterday is the laughing-stock of to-day.

I will not say, with the ancients, that nothing is permanent but mediocrity; but I am convinced that the most lasting praise is reserved for those only, whether architects or artists generally, who will not risk their reputations by extravagant flights of fancy, either in design, composition, or decoration.

What, then, are the principles that should guide us in the treatment of colour in external architecture?

1st. Whatever colours may be used, they should not be so used as to detract from the harmony and unity of the general effect.

For this reason violent contrasts are seldom attended with good results: when such strongly-marked contrasts are not offensive, it is when they are uniformly spread over a whole composition. Thus, when, in a red brick building, stone dressings are used throughout for the quoins, window jambs, cornices, strings, &c.; or when, on an exterior of red bricks, there are reticulations of black bricks over all the plain surfaces, these strong contrasts of colour do not offend the eye, because of the intimate and general intermixture of them: the only effect is, that in the one case the light stone dressings lighten the effect of the building, and in the other case the dark reticulations, being disseminated over the whole, lower the tone without disturbing the unity of the building. But scatter these white stones or black bricks here and there, sparsely and at irregular intervals over the front, and the general effect will assuredly become spotty and disorderly.

2nd. In the distribution of coloured materials regard should be had to the retiring and advancing qualities of colour. Thus white, and bright yellows, and bright reds appear to stand forward, whilst black, blue, and greys retire. Care should be taken not to outrage these prejudices of the eye: for example, when dark and retiring colours prevail at the lower parts of an architectural composition, and the upper parts are of bright-coloured materials, the latter will inevitably appear to advance and overhang the former, producing a false effect that cannot be agreeable.

So, when buttresses are built of a darker stone than the intervening wall, they seem to sink into instead of advance from the face of the wall, and the eye gets puzzled and offended; for an effect is produced at variance with what we know to be the fact. For the same reason I have seen a very bad effect produced by a black marble frieze introduced in an order built in other respects of light-coloured materials. When viewed at some distance, or with half-closed eyes, the cornice seemed suspended in the air; or at all events the means of its support were not obvious; and, generally, we may regard it as a rule in matters of this nature that constructive doubt and uncertainty produce an unpleasing impression, like that produced by the concealment of the feet of figures in a picture.

So also dark marble columns in front of a light wall, unless brought out by polish, or by a considerable depth of shadow behind them, lose that prominence and æsthetic value which should belong to them: reverse the arrangement and all ambiguity vanishes: each part then takes its right place in the composition, and the eye consequently rests satisfied.

It ought not to be necessary to dwell on a principle that appears, I think, so obvious; but it is too certain that the principle, obvious as it may be, is often lost sight of.

3. Special care is needed, in the introduction of dark bands and other features of like nature, that they do not interfere with the architectural shadows of the composition. Nothing, perhaps, in architectural design, is more important than to preserve its outlines and masses distinct and unambiguous; and as these outlines and masses are best brought out and rendered intelligible by shadow, whatever interferes with the due force of these shadows must detract from the effectiveness of the work.

There is great danger in using those dark streaks and chequered courses which are now gaining so much favour; lest the shadows of the building in which [illegible] value. For when [illegible] a clear perception o[illegible] distinguishable fro[illegible]

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4. There is anoth[illegible] portance in the tre[illegible] terior of architectu[illegible] should be consistent[illegible] poses of the buildin[illegible] rectly appreciated t[illegible] by frequently design[illegible] purposes Whitehalls[illegible]

The hall at Keni[illegible] "whitehall." "Th[illegible] Old Palace of Westr[illegible] Charles's intended[illegible] There is also a "w[illegible] at Berlin. Even ou[illegible] have taken over witl[illegible] have their "whiteh[illegible] gatherings. It is a[illegible] any true-born Lond[illegible] and the White To[illegible] cinct of Lo[illegible] of this port[illegible] name to having beer[illegible] very fine illuminat[illegible] century, preserved [illegible] fully executed viev[illegible] the foreground of w[illegible] and, while the ge[illegible] is coloured natura[illegible] tone; the tower, wi[illegible] out, prominently [illegible] marked is the distinction that it cannot have been so represented in the manuscript without a special purpose, which was probably that of identifying the building.

If, as I have said, white is calculated to produce in the mind a cheerful impression, black, on the other hand, has ever been viewed in an opposite sense. Thus, from remotest times, black was typical of mourning. Atra and lugubria were synonymous words. Even the sacred rhapsodist, when he would describe a scene of terror and despair, says, "All faces gathered blackness."

The same distinction is alike applicable to those colours which, on the one hand, partake of the character of light, and those which, on the other hand, are characterised by an absence of light. It is not for us here to inquire whether there may not be physical causes assignable for this mental phenomenon; but that the animal spirits may be raised or depressed by the mere contemplation of different colours; that colours, according to this quality, may be productive of positive pleasure or pain, irrespective of any considerations of harmony and discord, are facts within the reach of every man's experience, although probably it is beyond the reach of human intelligence satisfactorily to explain them.

The power of colour to produce strong emotions of the mind has been at all times recognised. Thus, when the sacred writer desired to raise in the mind a picture, in the highest degree poetical, of the holy city, he represented that the building of its wall was *iasper*, and its foundations as being garnished with *sapphires*, with *calcedony*, *emerald*, and all other stones of resplendent colours: the gates were of pearl, and the streets of pure gold. No doubt the value and rarity of these precious substances were also calculated to excite the imagination; but their beautiful colours were evidently an important ingredient of the vision. Sometimes our admiration of an object is excited by describing it to be "like unto a jasper" or "to a Sarden stone," or even to "a rainbow." The Bible is indeed full of evidences of the high appreciation of colour as a source of beauty and pleasure. In the Homeric writings also we may find abundant evidence of this natural and pervading feeling. Azure and vermilion are constantly used as typical, as it were, of regal splendour. No doubt every classic scholar can greatly extend these illustrations.

I will not detain you with quotations from Chaucer, Spencer, and others of our poets, in whose minds rich colouring seems ever to be associated with ideas of magnificence.

I do not know how far I shall have been justi[illegible]

[illegible] by some to be measured. Beautiful as are the Ste. Chapelle and the church of Ste. Geneviève, at Paris, and the Hof Kapelle, at Munich, it is impossible not to regard them rather as æsthetic triumphs than as evidences of the devotion of the builders.

It is very long since I saw the church of Sta. Maria Maggiora, at Rome, prepared for the midnight ceremonies of Christmas Eve; but I have a vivid recollection of the enchanting effects of the bright polished marbles and the gorgeous gilding, the crimson satin-embroidered banners, and the green festoons; yet the impression produced on my mind was that I saw before me the most elaborately beautiful *salle à danser* in the world.

It is, I repeat, a principle of paramount importance that every building should be conformable, in the character of its architecture, to the nature of the purposes to which it is destined. There is, in the treatment of colour in exterior architecture, yet another consideration, which must by no means be overlooked; viz., that treatment should always be influenced by the *site* of the building. The *genius loci* must be consulted. The strong positive red of bricks, for example, extending over any bulky object, presents an unpleasant contrast when surrounded by a green foliage; and, when these bricks are of a dark dingy tone, they sink into the landscape, and the building, as such, loses proportionately its value.

For this obvious reason stone is a very preferable material. We must all have often had occasion to observe how a white building brightens up a

TORN PAG

landscape; how the white cottage sparkles in the distance when set off by the surrounding deep green tones.

It is true these white buildings may cease to be so pleasing when they occupy too much space in the eye: a great white mansion is always best seen when half-concealed by foliage; and this may suggest more artificial modes of subduing the intensity and breaking up the monotony of these large white masses. For this reason the intermixture of stone and brick is often far preferable to the use wholly of one or the other; but the use of two qualities of stone, the one of lower tone than the other, is perhaps a still more unobjectionable measure, provided the difference in tone be not too violent.

In civic architecture, other special, local considerations have to be taken into account. There are in towns seldom any pleasing natural accompaniments to assist us. House is opposed to house: each has to contend with the damaging effects of its neighbour. In fact our most frequented streets present, for the most part, a very inharmonious

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far to carry this variety of colour.

In some towns on the Continent we see washes of green, yellow, red, and other gaudy colours, used to an almost ludicrous extent; and in nothing does the Asiatic origin of a large portion of the population of Russia show itself more than in their love of gaily-coloured architecture, both domestic and ecclesiastical.

At Moscow, near the Kremlin, is a church dedicated to St. Vassil, whose fantastic and indescribable architecture is rendered still more barbaric by the brightest colouring, up to the very summits of its highest towers. The bulbous-shaped domes that, in singular profusion, surmount the towers of the adjacent palace—or group of palaces—designated the Kremlin, glitter with gold and paint; whilst the iron roofs throughout the city seem all to be green or red.

In their country-houses, too, I hear of an excessive use of bright greens and reds.

These are, it is true, the excesses ever attendant on an uncurbed, uncultivated taste, but perhaps on that very account they the better illustrate the natural tendency of *all* minds, both the wise and the simple, to derive pleasure from colour.

Let us, however, be moderate in our indulgence of this pleasure; and let us be discreet in the *manner*, as well as in the *measure*, of our indulgence.

My own predilections are certainly in favour of almost limiting the varieties of colour on the outside of a building to those which are afforded by the natural hues of the materials themselves.

STONE PRESERVATIVE PROCESSES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of members was held on Monday evening last, at the house in Conduit-street.

Mr. Digby Wyatt, vice-president, occupied the chair.

Mr. T. H. Lewis, honorary secretary, read a letter which had been received from the Town Clerk of the Corporation of Hereford, in answer to a communication addressed to the Corporation by the Institute some time since, on behalf of the ancient Market-house or Townhall, then threatened with destruction. The letter stated that the Corporation much regretted that they could not comply with the wish of the Institute to see the Market-house restored; that its position was extremely inconvenient, blocking up in part a narrow thoroughfare; and that the present state of the city funds would not allow of their restoring an edifice which, when finished, could not be turned to any useful purpose.

The Chairman said, with regard to the special business of the night, namely, the consideration of the various processes which had from time to time been submitted for the preservation of stone, that four years had elapsed since they had an animated discussion upon a paper read on the subject. During the interval time had been afforded for practically testing the merits of the various processes, and it would be interesting now to learn the actual condition of the surfaces which had been subjected to their action. With this view he invited their attention to the observations which Mr. Tite was about to make.

Mr. Tite, M.P., said,—I have to express my thanks to the Council of the Institute for the opportunity they have given me of promoting the discussion of this evening; and, on my own part, for their permitting me to open it. In a meeting like this, composed mainly of professional architects, the great importance of the subject we have met to discuss will be sufficient justification for the step I have taken. For I think, as a profession, we must feel that nothing can be of more importance to us than to endeavour to discover the causes of the failure of the principal material employed in the construction of the Palace of Westminster, and to inquire into what steps ought to be taken to arrest the decay which, at so early a period of its construction, has manifested itself, in a manner so marked as to render it an object of European notice and of national regret. A building of vast extent, just finished, built without reference to cost, and, as far as possible in construction, of materials intended to last for an indefinite period of time, to defy the ordinary causes of accident in ordinary edifices;—a building of which we are justly proud as a nation for the combination of artistic learning and science, with the greatest skill of the best of English artificers, acknowledged by all to be the best in the world. And yet, when the sound of the finishing strokes of the axe and the hammer have hardly ceased, it is found externally in a state of lamentable decay;—a decay so extensive that I think the professional experience of any architect cannot find any parallel whatever. It is true we have seen, and are constantly seeing, in this and other countries, the necessity for restorations, various in extent and character, and many of them due to the same cause as that we are now about to consider. And in this I may quote the cases of Notre Dame, St. Denis, Chartres, Rouen, and other continental celebrities; or, in our own country, the very familiar ones of Henry VII.'s Chapel, and Redcliffe Church, Bristol. But then, these cases of decay are found after the lapse of centuries, and not of years, and are due to causes perfectly intelligible. Not so with the case before us. Here science and caution have been exhausted; and at the outset no probable foundation for the result which has followed was allowed to exist, and no expectation of failure could have been reasonably surmised. Under these circumstances, I have asked for the present meeting. It is a question which concerns us not only as architects. Though we may refuse to allow ourselves to be involved in the reproaches so ready to be cast upon us, yet we must amongst the ranks of our profession have all the experience which exists among living men on the subject, with the technical skill best able to appreciate any proposition which may be made for the amelioration of this great evil. For myself, in proceeding, let me say, I have no personal object to serve; I have no theory to maintain; no likings or dislikings of individuals. I will endeavour to state everything candidly and fairly, and without bias, with a view to promote discussion in the widest and most friendly spirit; and I trust the spirit I desire myself to show I may be enabled myself to realize: and in so doing I feel I shall best promote the object I have in view,—the obtaining of some practical and useful result on this much-vexed question.

Mr. Tite then proceeded to observe that the notice placed on the paper suggested that he intended to give some account of the processes used by the ancients for the preservation of stone. If last year he had been told that such a practice prevailed among the ancients, he might have been inclined to deny the statement; experience of their buildings induced him to believe that they made no such attempts, because none were necessary in their climate. That they decorated their buildings, and, in some cases, their statues, with colour, no one could doubt for a moment; but the marble of which they erected their public buildings and houses required no artificial covering to protect it from the ravages of time. Recently, however, notice had been drawn to two processes,—one known to the ancients as Zopissa, and the other as Encaustic. With regard to zopissa, he could not find that any reference had been made as to its use in connection with stone; but Dioscorides and Pliny had referred under that term to some process by which the ancients used to coat their ships. Noah, no doubt, coated the ark, as he was directed, with the pitch and bitumen of the country; and the

that by the middle of that century the toes of any well-dressed gentleman were tied up to his waistband.

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For this reason violent contrasts are seldom attended with good results: when such strongly-marked contrasts are not offensive, it is when they are uniformly spread over a whole composition. Thus, when, in a red brick building, stone dressings are used throughout for the quoins, window jambs, cornices, strings, &c.; or when, on a[illegible]erior of red bricks, there are reticulati[illegible]ons of black bricks over all the plain surfaces, these strong contrasts of colour do not offend the eye, because of the intimate and general intermixture of them: the only effect is, that in the one case the light stone dressings lighten the effect of the building, and in the other the dark reticulations, being dissemi- which over the whole, lower the tone without disturbing the unity of the building. But scatter these white stones or black bricks here and there, sparsely and at irregular intervals over the front, and the general effect will assuredly become spotty and disorderly.

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So, when buttresses are built of a darker stone than the intervening wall, they seem to sink into instead of advance from the face of the wall, and the eye gets puzzled and offended; for an effect is produced at variance with what we know to be the fact. For the same reason I have seen a very bad effect produced by a black marble frieze introduced in an order built in other respects of light-coloured materials. When viewed at some distance, or with half-closed eyes, the cornice seemed suspended in the air; or at all events the means of its support were not obvious; and, generally, we may regard it as a rule in matters of this nature that constructive doubt and uncertainty produce an unpleasing impression, like that produced by the concealment of the feet of figures in a picture.

So also dark marble columns in front of a light wall, unless brought out by polish, or by a considerable depth of shadow behind them, lose that prominence and æsthetic value which should belong to them: reverse the arrangement and all ambiguity vanishes: each part then takes its right place in the composition, and the eye consequently rests satisfied.

It ought not to be necessary to dwell on a principle that appears, I think, so obvious; but it is too certain that the principle, obvious as it may be, is often lost sight of.

3. Special care is needed, in the introduction of dark bands and other features of like nature, that they do not interfere with the architectural shadows of the composition. Nothing, perhaps, in architectural design, is more important than to preserve its outlines and masses distinct and unambiguous; and as these outlines and masses are best brought out and rendered intelligible by shadow, whatever interferes with the due force of these shadows must detract from the effectiveness of the work.

There is great danger in using those dark streaks and chequered courses which are now gaining so much favour; lest the shadows of the building in which they occur should lose their value. For when not seen so near as to allow of a clear perception of details, these bands are hardly distinguishable from shadows.

However easy it may be to cite old examples as a justification, reason ought ever to prevail over precedent. I know that these zebra stripes occur in many parts of the peninsula of Italy and in Spain, as well as elsewhere in Europe and in the East. As I have already said, they may have originated in some constructive requirement, no doubt adding to the strength of the wall.

We have no such valid reason to urge in favour of our dark streaks: at all events they constitute, I think, one of those eccentricities of the past which scarcely deserve to be disinterred.

4. There is another principle, of paramount importance in the treatment of colour in the exterior of architecture; viz., that the colouring should be consistent in character with the purposes of the building itself. Our ancestors correctly appreciated the cheerful character of white by frequently designating halls erected for festive purposes Whitehalls.

The hall at Kenilworth Castle was called the "whitehall." "There was a "whitehall" in the Old Palace of Westminster; and the Whitehall of Charles's intended palace is familiar to us all. There is also a "whitehall" in the Royal Palace at Berlin. Even our cousins across the Atlantic have taken over with them the tradition; and they have their "whitehalls" for festive and popular gatherings. It is a fact, not without interest to any true-born Londoner, that the lofty building, called the White Tower, in the Mediæval citadel of this port of London, seems likely to owe its name to having been whitewashed externally. In a very fine illuminated manuscript of the fifteenth century, preserved in the British Museum, a carefully executed view of London is introduced, in the foreground of which appears this great fortress; and, while the general masonry of the building is coloured naturally, and in a somewhat low tone; the tower, with its four angle turrets, stands out, prominently and conspicuously, white. So marked is the distinction that it cannot have been so represented in the manuscript without a special purpose, which was probably that of identifying the building.

If, as I have said, white is calculated to produce in the mind a cheerful impression, black, on the other hand, has ever been viewed in an opposite sense. Thus, from remotest times, black was typical of mourning. Atra and lugubria were synonymous words. Even the sacred rhapsodist, when he would describe a scene of terror and despair, says, "All faces gathered blackness."

The same distinction is alike applicable to those colours which, on the one hand, partake of the character of light, and those which, on the other hand, are characterised by an absence of light. It is not for us here to inquire whether there may not be physical causes assignable for this mental phenomenon; but that the animal spirits may be raised or depressed by the mere contemplation of different colours; that colours, according to this quality, may be productive of positive pleasure or pain, irrespective of any considerations of harmony and discord, are facts within the reach of every man's experience, although probably it is beyond the reach of human intelligence satisfactorily to explain them.

The power of colour to produce strong emotions of the mind has been at all times recognised. Thus, when the sacred writer desired to raise in the mind a picture, in the highest degree poetical, of the holy city, he represented that the building of its wall was *jasper*, and its foundations as being garnished with *sapphires*, with *calcedony*, *emerald*, and all other stones of resplendent colours: the gates were of pearl, and the streets of pure gold. No doubt the value and rarity of these precious substances were also calculated to excite the imagination; but their beautiful colours were evidently an important ingredient of the vision. Sometimes our admiration of an object is excited by describing it to be "like unto a jasper" or "to a Sarden stone," or even to "a rainbow." The Bible is indeed full of evidences of the high appreciation of colour as a source of beauty and pleasure. In the Homeric writings also we may find abundant evidence of this natural and pervading feeling. Azure and vermilion are constantly used as typical, as it were, of regal splendour. No doubt every classic scholar can greatly extend these illustrations.

I will not detain you with quotations from Chaucer, Spencer, and others of our poets, in whose minds rich colouring seems ever to be associated with ideas of magnificence.

I do not know how far I shall have been justified in so long a digression; but I trust that I have at least established enough to warrant me in saying that the poet, of whatever country, or age, or creed he may be, will be always found to regard *colour* as an important means of raising in the mind an image of beauty or magnificence.

I am very sensible that there is a vast—an almost incalculable—difference between the works of the poet and of the architect. The one has but his imagination to draw upon, whilst the other has to seek the materials of *his* work from a very different source: and too bold a draught upon *his* imagination would be the likeliest means of bringing his career to an untimely end. Still there is an analogy, remote it may be, but real, and, I think, manifest.

I have said that I regard it as a principle of our art, in the treatment of colour in exterior architecture, that the colouring shall be consistent in character with the purpose of the building itself; and I have adduced various notable instances of the adaptation of colour to the nature of the building. The subject is, indeed, fruitful. I might easily adduce abundant proof to show that, as bright colouring has ever been regarded as productive of a gay and cheerful effect, so dark or sombre hues are equally effective in raising feelings in harmony with the grave and serious purposes of some buildings.

This, indeed, seems obvious. Who would not be at once struck with the excessive impropriety of bright coloured decorations on the exterior of a prison, or a cemetery? and, may I not add, too, of a church? For, however becoming it may be to lavish on a building destined to the service of God, all the best offerings of art and genius, I am by no means convinced of the propriety of chequering over the exterior of a church with bits of bright coloured materials.

Even in the interior of a church it is, to my mind at least, open to question, whether a true religious feeling is not better expressed by the grey, sombre tints of old stonework, than by the gorgeous pageants of gilding and painting, inlaying, and polishing, by which piety is supposed by some to be measured. Beautiful as are the Ste. Chapelle and the church of Ste. Geneviève, at Paris, and the Hof Kapelle, at Munich, it is impossible not to regard them rather as æsthetic triumphs than as evidences of the devotion of the builders.

It is very long since I saw the church of Sta. Maria Maggiora, at Rome, prepared for the midnight ceremonies of Christmas Eve; but I have a vivid recollection of the enchanting effects of the bright polished marbles and the gorgeous gilding, the crimson satin-embroidered banners, and the green festoons; yet the impression produced on my mind was that I saw before me the most elaborately beautiful *salle à danser* in the world.

It is, I repeat, a principle of paramount importance that every building should be comformable, in the character of its architecture, to the nature of the purposes to which it is destined. There is, in the treatment of colour in exterior architecture, yet another consideration, which must by no means be overlooked; viz., that treatment should always be influenced by the *site* of the building. The *genius loci* must be consulted. The strong positive red of bricks, for example, extending over any bulky object, presents an unpleasant contrast when surrounded by a green foliage; and, when these bricks are of a dark dingy tone, they sink into the landscape, and the building, as such, loses proportionately its value.

For this obvious reason stone is a very preferable material. We must all have often had occasion to observe how a white building brightens up a

landscape; how the white cottage sparkles in the distance when set off by the surrounding deep green tones.

It is true these white buildings may cease to be so pleasing when they occupy too much space in the eye: a great white mansion is always best seen when half-concealed by foliage; and this may suggest more artificial modes of subduing the intensity and breaking up the monotony of these large white masses. For this reason the intermixture of stone and brick is often far preferable to the use wholly of one or the other; but the use of two qualities of stone, the one of lower tone than the other, is perhaps a still more unobjectionable measure, provided the difference in tone be not too violent.

In civic architecture, other special, local considerations have to be taken into account. There are in towns seldom any pleasing natural accompaniments to assist us. House is opposed to house: each has to contend with the damaging effects of its neighbour. In fact our most frequented streets present, for the most part, a very inharmonious medley of sizes, forms, and colours; like a Dutch concert, where each performer, it is said, plays his own particular tune.

Still it is very questionable whether even this scene of confusion may not be regarded as less objectionable than the insipid uniformity of some modern German towns, such as Stutgard, for example, where it would appear to be almost impossible for a man to know his own house from his neighbour's, unless assisted by some private mark or some familiar badge. The severest military discipline seems to pervade even the architecture of the town; and the houses are drawn up in array like soldiers on parade. We might say of them (taking a little liberty with a well-known text)—

> "House nods on house, each column has a brother;
> And either terrace just reflects the other."

Such dull uniformity seems to me more offensive than the most tumultuous disorder.

In the architecture of towns and cities we are seldom called upon, as in rural situations, to subdue or neutralize any excessive whiteness. In the large towns of England, at least, *soot* soon clothes the nakedness of a new stone building, and too effectually lowers its tone. This might suggest the expediency, in such a climate and with such an atmosphere as ours, of avoiding the use of any coloured material of too low a tone. Those who have seen Schinkel's elaborate work in deep red terra cotta,—the Bauschule, at Berlin,—will have regretted that so much intricate and beautiful workmanship should result in producing so ponderous an effect. Light loses its quality of brilliancy, and shadows lose their force and distinctness, when the façade is veiled, as it were, in this monotonous, deep tone.

I think, then, that it will be admitted by all that a certain amount of a variety of colour, in a piece of architecture of any considerable extent, adds to its power of pleasing by giving it spirit and animation.

But it is in this as in most other matters dependent on human judgment; the greatest difficulty—that which is the real touchstone of talent—is to know where to stop, and to determine how far to carry this variety of colour.

In some towns on the Continent we see washes of green, yellow, red, and other gaudy colours, used to an almost ludicrous extent; and in nothing does the Asiatic origin of a large portion of the population of Russia show itself more than in their love of gaily-coloured architecture, both domestic and ecclesiastical.

At Moscow, near the Kremlin, is a church dedicated to St. Vassil, whose fantastic and indescribable architecture is rendered still more barbaric by the brightest colouring, up to the very summits of its highest towers. The bulbous-shaped domes that, in singular profusion, surmount the towers of the adjacent palace—or group of palaces—designated the Kremlin, glitter with gold and paint; whilst the iron roofs throughout the city seem all to be green or red.

In their country-houses, too, I hear of an excessive use of bright greens and reds.

These are, it is true, the excesses ever attendant on an uncurbed, uncultivated taste, but perhaps on that very account they the better illustrate the natural tendency of *all* minds, both the wise and the simple, to derive pleasure from colour.

Let us, however, be moderate in our indulgence of this pleasure; and let us be discreet in the *manner*, as well as in the *measure*, of our indulgence.

My own predilections are certainly in favour of almost limiting the varieties of colour on the outside of a building to those which are afforded by the natural hues of the materials themselves. I feel averse to resort, in exterior architecture, to the use of artificial colouring, except for temporary or experimental purposes, when, of course, the practice is quite admissible; but I would never willingly resort to painted external decorations as permanent work; if, indeed, any work so executed can be called permanent. Where oil is the chief vehicle adopted for the colour, no doubt it resists the weather for some, even for many years, perhaps, although its purity and brilliancy may speedily depart; but if oil-painted decorations be objectionable for their deficient durability, how infinitely more so are the ephemeral decorations of other pigments. I well remember when at Munich my great concern to find that, by casually leaning against the wall of a great public building, I had transferred on to my coat no inconsiderable portion of its Pompeian ornamentation.

I hope we shall never be driven, by the urgency of other demands on the public purse, to resort to *such* means of beautifying *our* public buildings. There, at all events, let our colours be natural. Nor will this obligation impose on us any inconvenient limits. Nature is rich in coloured materials of various hues: we have in common building stones a wide range from red sandstones to chalk, and our marbles are almost endless in their variety of colour.

I would, however, except from this condemnation of artificial colouring one most important source of beauty. I refer to the use of those earths that, by burning and vitrifaction, and by chemical processes, are brought to the condition of naturally-coloured substances. There need be no apprehension as to *their* permanency: *they* will outlast most stones; and *their* colour never fails them. I have already adverted to the use of this artificial material, and I now only remind you of it to show what abundant means we possess of colouring our architecture, without resorting to the paint-brush and to the wash-pot.

I have now touched upon most of the salient points of the subject to which I have appropriated this evening. I feel too well aware how little can be effected within the narrow compass of a single lecture; but I believe the value of such remarks as I may address to you depends *wholly* on their *suggestive* nature. Whatever truth there may be in the thoughts expressed, they are wholly inert and valueless unless they are made by you the groundwork of further thoughts, and excite in your minds a desire to pursue farther the inquiry into the subjects touched upon.

The seed that falls upon barren ground will take no root, and be productive of no good result; whilst that which falls upon good ground is at once kindly received, and springs up and brings forth fruit, some twenty-fold, some fifty, and some one hundred-fold, according to the richness of the soil and to the care of the husbandman.

To quicken the energy, to smooth the path, and to facilitate the progress of the really studious learner, is the anxious desire and aim of this Academy: you will accept this my assurance that the student who, in his earnest exertions to improve himself, shall seek such aid and advice as I feel myself competent to give, will find in me no grudging or unwilling, but rather a most ready and cheerful adviser.

STONE PRESERVATIVE PROCESSES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of members was held on Monday evening last, at the house in Conduit-street.

Mr. Digby Wyatt, vice-president, occupied the chair.

Mr. T. H. Lewis, honorary secretary, read a letter which had been received from the Town Clerk of the Corporation of Hereford, in answer to a communication addressed to the Corporation by the Institute some time since, on behalf of the ancient Market-house or Townhall, then threatened with destruction. The letter stated that the Corporation much regretted that they could not comply with the wish of the Institute to see the Market-house restored; that its position was extremely inconvenient, blocking up in part a narrow thoroughfare; and that the present state of the city funds would not allow of their restoring an edifice which, when finished, could not be turned to any useful purpose.

The Chairman said, with regard to the special business of the night, namely, the consideration of the various processes which had from time to time been submitted for the preservation of stone, that four years had elapsed since they had an animated discussion upon a paper read on the subject. During the interval time had been afforded for practically testing the merits of the various processes, and it would be interesting now to learn the actual condition of the surfaces which had been subjected to their action. With this view he invited their attention to the observations which Mr. Tite was about to make.

Mr. Tite, M.P., said,—I have to express my thanks to the Council of the Institute for the opportunity they have given me of promoting the discussion of this evening; and, on my own part, for their permitting me to open it. In a meeting like this, composed mainly of professional architects, the great importance of the subject we have met to discuss will be sufficient justification for the step I have taken. For I think, as a profession, we must feel that nothing can be of more importance to us than to endeavour to discover the causes of the failure of the principal material employed in the construction of the Palace of Westminster, and to inquire into what steps ought to be taken to arrest the decay which, at so early a period of its construction, has manifested itself, in a manner so marked as to render it an object of European notice and of national regret. A building of vast extent, just finished, built without reference to cost, and, as far as possible in construction, of materials intended to last for an indefinite period of time, to defy the ordinary causes of accident in ordinary edifices;—a building of which we are justly proud as a nation for the combination of artistic learning and science, with the greatest skill of the best of English artificers, acknowledged by all to be the best in the world. And yet, when the sound of the finishing strokes of the axe and the hammer have hardly ceased, it is found externally in a state of lamentable decay;—a decay so extensive that I think the professional experience of any architect cannot find any parallel whatever. It is true we have seen, and are constantly seeing, in this and other countries, the necessity for restorations, various in extent and character, and many of them due to the same cause as that we are now about to consider. And in this I may quote the cases of Notre Dame, St. Denis, Chartres, Rouen, and other continental celebrities; or, in our own country, the very familiar ones of Henry VII.'s Chapel, and Redcliffe Church, Bristol. But then, these cases of decay are found after the lapse of centuries, and not of years, and are due to causes perfectly intelligible. Not so with the case before us. Here science and caution have been exhausted; and at the outset no probable foundation for the result which has followed was allowed to exist, and no expectation of failure could have been reasonably surmised. Under these circumstances, I have asked for the present meeting. It is a question which concerns us not only as architects. Though we may refuse to allow ourselves to be involved in the reproaches so ready to be cast upon us, yet we must amongst the ranks of our profession have all the experience which exists among living men on the subject, with the technical skill best able to appreciate any proposition which may be made for the amelioration of this great evil. For myself, in proceeding, let me say, I have no personal object to serve; I have no theory to maintain; no likings or dislikings of individuals. I will endeavour to state everything candidly and fairly, and without bias, with a view to promote discussion in the widest and most friendly spirit; and I trust the spirit I desire myself to show I may be enabled myself to realize: and in so doing I feel I shall best promote the object I have in view,—the obtaining of some practical and useful result on this much-vexed question.

Mr. Tite then proceeded to observe that the notice placed on the paper suggested that he intended to give some account of the processes used by the ancients for the preservation of stone. If last year he had been told that such a practice prevailed among the ancients, he might have been inclined to deny the statement; experience of their buildings induced him to believe that they made no such attempts, because none were necessary in their climate. That they decorated their buildings, and, in some cases, their statues, with colour, no one could doubt for a moment; but the marble of which they erected their public buildings and houses required no artificial covering to protect it from the ravages of time. Recently, however, notice had been drawn to two processes,—one known to the ancients as Zopissa, and the other as Encaustic. With regard to zopissa, he could not find that any reference had been made as to its use in connection with stone; but Dioscorides and Pliny had referred under that term to some process by which the ancients used to coat their ships. Noah, no doubt, coated the ark, as he was directed, with the pitch and bitumen of the country; and the

Greeks and Romans seem to have done the same. In fact, he had no doubt that the process of "paying" vessels, adopted by the fishermen of the present day at Brighton, was precisely similar to that in vogue among the ancient Greeks and Romans. In the 98th chapter of Dioscorides, a statement was found that the Greeks scraped the pitch and wax off their old ships; remelted it; and then applied it as paint; by which means it acquired greater resisting power to the action of the water than ordinary pitch. The same stuff was also recommended as a medicine for the cure of boils. Pliny gave pretty much the same account of the process, which it was evident was used exclusively for the protection of ships, and not for the preservation of stone. He now came to the process used by the ancients, and known as encaustic. Vitruvius had left a very full account of the mode in which it was applied. It appeared that they burned marble into a quick lime, and then used it as a plaster, very much as we ourselves did; and, after the third coating, painted the fresco. Vitruvius also described the manner in which white lead and verdigris were made; and any one who had ever been in a white-lead manufactory would see that the plan adopted in the present day was precisely similar to that of the ancients, with this exception,—that we used tan instead of the twigs as mentioned by Vitruvius. With regard to the process which appeared to have been known to the Assyrians, Sir Henry Rawlinson mentioned having met with a solution of Silica, applied to give a finish to the surface on which was described the cuneiform inscription of Darius Hystaspes. This silicious varnish was thus described by Sir Henry Rawlinson:—"It would," he said, "be very hazardous to speculate on the means employed to engrave the work in an age when steel is supposed to have been unknown; but I cannot avoid noticing a very extraordinary device which has been employed apparently to give a finish and durability to the writing. It was evident to myself, and to those who in company with myself scrutinized the execution of the work, that, after the engraving of the rock had been accomplished, a coating of silicious varnish had been laid on, to give a clearness of outline to each individual letter, and to protect the surface against the action of the elements. This varnish is of infinitely greater hardness than the limestone rock beneath it. It has been washed down in several places by the trickling of waters for three and twenty centuries, and it lies in flakes upon the footledge like thin layers of lava. It adheres in other portions of the tablet to the broken surface, and still shows with sufficient distinctness the forms of the characters, although the rock beneath is entirely honeycombed and destroyed. It is only, indeed, in the great fissures, caused by the outbursting of natural springs, and in the lower part of the tablet, where I suspect artificial mutilation, that the varnish has entirely disappeared." The coating described by Sir Henry Rawlinson could not, in his (Mr. Tite's) opinion, be a varnish, as varnish was composed of gum and spirits of wine, or gum and turpentine, neither of which was sufficient to resist the action of the elements for any great length of time. He fancied that the rocks were composed of sulphate of lime, and that the trickling of the water had produced the appearance described by Sir Henry Rawlinson, and also the polished coating. The carving discovered at Nineveh had, he understood, a somewhat similar coating, which, however, might have been a silicate artificially applied by the ancients at a very early period; and, admitting such an hypothesis, it was a remarkable application of a scientific truth. He would now proceed to consider what, under the present state of circumstances, ought to be done to arrest the decay of stone in our public buildings. The stone we now used was limestone, stone bound together by carbonic acid. We found our building stones, as the French did, at the top of our tertiary system; we also used the oolite, such as that found at Bath. The Portland stone was found in one of the upper beds. When it was proposed to build the new Houses of Parliament, we were not content with the excellent stone which had been tried successfully in other public buildings in the metropolis, but we desired to get better. In the words of the Italian proverb, we wished to do better than well; took physic, and,—here we are. A royal commission was appointed to select the stone; and, having visited almost every quarry in the kingdom, they at last hit upon one between Derby and York, which they fancied to be indestructible. It was called a dolomite, but it was in fact the magnesian lime-stone from which magnesia was manufactured. An elaborate and able report was issued by the commissioners; and the suggested cause of failure now appeared to be, that, whereas the stone in its crystalline form is all but imperishable, no stone decays more rapidly in cases where crystallization has not taken place. It was evident, therefore, that a great deal of care should be taken in selecting the stone. This remark also applied to other descriptions of stone. The Caen stone, for instance, if well chosen, would last a long time; yet, at Buckingham Palace, it decayed in a few years; whereas a similar description of stone at Rochester Cathedral had stood for ages. The same remark applied to Bath stone and to Portland stone. With regard to the latter, he knew an instance in which the stone brought from the west of the Isle of Portland gave the greatest satisfaction; while that from the Bill of Portland had decayed in a short time. The architect, however, was not to blame; for all he could do was to recommend a certain quarry, and direct that a competent person, like Mr. Smith, should be appointed to mark every block. An illustration of the advantage of selecting the stone with care was supplied in the case of the Geological Museum in Jermyn-street. The stone used there was a magnesian lime-stone, and it showed no sign of decay, because it had been carefully chosen. (The honourable gentleman then proceeded to make a number of experiments to show in what manner sulphuric acid acted upon lime-stone, and liberated the carbonic acid).

These experiments were, he said, sufficient to show the manner in which the acid in the atmosphere destroyed our calcareous stone. The extent of the decomposition thus going on was further proved by the fact that, whereas, in the pure air of Switzerland and Canada, ridges and pinnacles of public buildings, tipped with block tin sent from England, endured in a burnished state for years, the same material would become black and corroded in a few months if used in England. With regard to the remedies to prevent decay, three different kinds had been suggested from time to time, which might be described as bituminous, oleaginous, or partaking of oil, and silicious. About five-and-twenty years ago, when some of the great streets in the City of London were laid out by Sir Robert Smirke, a very curious cement, known as Hamlin's, of a very beautiful colour, was brought under his notice, which he eventually adopted. It was composed of sand or ground stone, grey and red oxide of lead, and was made into a paste by the addition of linseed oil. Being curious to know something of the properties of this compound, he submitted a portion of it to Mr. now Professor Faraday, and he told him at once that it was coarse paint, and that, like all paint, it would decay in the course of time. He asked Mr. Faraday to show him how it would go; and, therefore, he stuck a bit of it in a candle, and it blazed away like so much firewood. Experience showed the truth of the criticism. The particulars of several patented inventions for the preservation of stone might be ascertained on reference to the Patent Office. He had obtained several. Of these the first in priority of date was that of Mr. Bethell, the brother of the Attorney-General, for preserving timber by steeping it in creosote. Mr. Bethell claimed a right to use his invention for hardening stone, but he (Mr. Tite) was not aware that it had ever been applied to that purpose. Next came the patent of Mr. William Hutchinson for making pasteboard and waterproofing for the roofing and the sheathing of ships, &c. He also proposed to apply it to stone. Then came the invention of Mr. Daines, which consisted of sulphur boiled in certain proportions with oil. This compound was named in the "Pharmacopœia" as a medicine, under the designation of *oleum sulphuratum*. After mentioning Mr. Daines's, then came the patent of Mr. Szerelmey, dated in the year 1851. He described it as a preparation for rendering walls and other structures waterproof; and the materials included water, blood, ground brick-powder, copper and iron slag, and other ingredients, mixed in certain proportions, and boiled together. A substance consisting of resin, oil, grit, and calcined flint, was subsequently added; and, when ready, the stuff was applied as a paint. Mr. W. E. Newton's patent ranked next in priority; and it might be described as a silicious substance, uniting the inventions of Fuchs and Kuhlman, as set out fully in the Journal of the Society of Arts, of July, 1859. The last invention was that of Mr. Ransome, which was a preparation for the manufacture of artificial stone. Having described at some length the German process, which, he stated, had been successfully applied at Lille, Berlin, and other places, and which consisted of a liquification of glass, Mr. Tite inquired whether it might not be possible, in an age so fruitful of scientific results as the present, to apply this water-glass to dry stone, so as to coat and protect it. He confessed that he looked forward with some hope to water-glass being eventually the medium for preserving stone from decay, because he considered that it offered the greatest prospects of success. Before concluding, however, he wished to say that he thought they were much indebted to the late and the present Chief Commissioner of Works for the fairness with which they had considered all the schemes recommended to them; and he earnestly hoped that something might yet be done to remove what might be called an architectural disgrace. Mr. Smirke had, in a letter which would be read, thrown out a suggestion, that the whole subject should be referred to a select committee of the Institute, to examine specimens and hear the explanations of the various parties interested. Such a committee might, no doubt, be productive of good; and, if one or two chemists of eminence were requested to give the committee their assistance, it might be more satisfactory. The inventors, whether foreigners or Englishmen, need not, however, be afraid of any injurious results arising to them; for although, in the present state of chemical science, it was absolutely impossible to keep a secret; still, if any inventor had a valuable remedy to offer, he might depend upon being treated with justice and consideration by the Government and the country.

Mr. Lewis then read a communication which the Council had received from Mr. Sydney Smirke, containing the expression of his regret that he was prevented from being present that evening. Mr. Smirke said,—

"I deeply regret my inability, through indisposition, to attend at the Institute this evening; not only because the subject is of vital importance to our art, but because every member ought, by his presence, if possible, to express his sense of gratitude to Mr. Tite for undertaking so difficult, and, in some respects, so invidious a task as that of canvassing the relative merits of rival processes.

Of the three principles, that of laying on zopissa ranks lowest in my estimation: there has been so much mystery and mystification about it, and there has been so much vain boasting about it, that I own I have acquired a prejudice against it, which may warp my judgment. I will, therefore, not say more than that no client of mine will use the zopissa by my recommendation.

With respect to the silification process it is simple, intelligible, and purely scientific in principle; and, if the theory of it can be practically and satisfactorily worked out, it would leave nothing more to be desired. If a thin film of pure silex can be made permanently to adhere to the face of the stone, so transparent as not to affect the colour of the stone, and so thin as not to destroy the sharpness of the carving on the stone, what more do we want? But I have not yet been satisfied that all these desiderata have been secured. It would, indeed, be a triumph of art if nature's process could be so effectually realized. The mechanical deposits of carbonate of lime in the interior of boilers and pipes; of sulphate of lime on stalactites; and the deposit of the salt of lime on urinals, &c., are all *granular at first*, and only become laminated after the process of deposition has been so largely continued as to have accumulated a considerable thickness of solid matter on the surface receiving the deposit.

These analogies are discouraging; and so many years have now passed since the scientific world was first put upon this scent, that I begin to fear that a perfectly satisfactory result is not forthcoming.

With regard to the sulphur process I need not say much; for the results of my experience, such as it is, are faithfully and exactly stated in the printed papers circulated by the inventor of that process.

The forty yards of experiment on the north side of the Conservative Club are within the reach of every one's observation; and, as far as three and a-half years' experience, proves the experiment is satisfactory: of this I will only say *quantum valeat*.

Should the discussion this evening result in the appointment of any committee to prosecute this important inquiry, carefully and systematically, the Institute may rely on my zealous services, whether on the committee or otherwise."

The Chairman said that, as they could not hope to conclude a discussion of so much interest that evening, so as to do justice to the subject; he had to announce that it would be resumed at the next ordinary meeting, on the 4th instant. He hoped, however, that, as some little time now remained for discussion, the meeting would be favoured with observations from some of the many eminent scientific gentlemen who had done them the honour to attend.

Mr. Burnell said he had devoted special attention to the subject, and had been afforded peculiar facilities for forming an opinion upon the various processes submitted to the public. He had for years been connected with the application of building stones, and he had seen in what manner they had decayed, not only in England, but in all portions of modern Europe. The subject, however, to which he had chiefly and more immediately directed his attention, was the lamentable decay in the stonework of the new Houses of Parliament,—a building upon which modern science had been exhausted, but which, unfortunately, while yet new, was beginning to decay. This might be regarded almost in the light of a national misfortune. With regard to the various processes for preserving stone, he was of opinion

that we had fallen into a mistake, because we ought to have addressed ourselves at first to the task of finding out a stone which would not decay. We had already, as Mr. Tite had well remarked, an excellent stone which would bear the London atmosphere, but we were not satisfied with it. It should be remembered, in discussing a question of this nature, that the crystalline condition of stones had a great bearing upon the question of their existence. The crystalline stone did not decay like that of an earthy nature. The stone used in the construction of the new Houses of Parliament was not the real dolomite, but an amorphous or earthy one, and hence the decay in the building. The question now was, what was to be done with the building. The amorphous or earthy stone was rapidly decaying: the sulphate of ammonia in the London atmosphere was acting upon the carbonate of magnesia. If they looked all through the new Houses of Parliament, they would find that the decay was not in the string-courses, but upon the small bead underneath, which was worn away in several places. The decay might also be detected about the line under the mouldings of the parapets, but not on the parapets themselves, or where moisture lay upon the buildings. It was at the point that might be called between wind and water. The question was, how was this to be prevented; and his own impression was, that the only way would be to devise a cement which would prevent the disintegration of the stone. With regard to applied coatings, it would be found that, wherever the stone was hermetically closed, the process of throwing off the salt had gone on under the coating. In the Speaker's Court the inside front had been coated no fewer than five different times; and yet the exfoliation was going on as before, and flakes of the stone might be picked off the ground. Some time since he had, in conjunction with Mr. Bidder and other gentlemen, examined the stonework in process of decomposition; and Mr. Szerelmey had inserted a letter in a newspaper to the effect that the process had not been repeated so many times as was alleged, and had added, that Mr. Bidder and the other gentlemen were ignorant of what decomposition meant. This, however, was a personal matter, to which he would not again refer. The great point to be achieved was to arrest the decay; and he fancied that might be accomplished by painting the stone with some insoluble cement. The next question then was, what would make such a cement? He firmly and conscientiously believed that some precipitate of silicate of lime was the only one which would answer the purpose. There were, however, difficulties in the introduction of it. The question was essentially a chemical one, requiring great skill, science, and delicate manipulation. The whole subject was, it must be admitted, involved in doubt and obscurity; but he thought that of all the inventions referred to that evening, Mr. Ransome's was the best, although he would not pin himself to it until full opportunity had been afforded to ascertain what further experiments might effect. He was in favour of referring the whole subject to a committee, composed of eminent chemists and architects, who, when brought together, could mutually assist each other in arriving at a satisfactory solution of the difficulty.

The Chairman said, that, as the head and front of the offending appeared to centre in the new Houses of Parliament, and as they had the honour that evening of seeing among them the Chief Commissioner of Public Works, he hoped that right hon. gentleman would state what course the Government felt disposed to take in reference to the matter.

The Right Hon. W. Cowper, M.P., said he was much gratified by the able comments which his honourable friend, Mr. Tite, had made on a subject which was well worthy the consideration of the Institute; for it was entirely to such a body as that which he had now the honour of addressing, that the Government and the public looked for guidance and help. Having, as Chief Commissioner of Works, the care of the new Houses of Parliament, he was anxious to avail himself of all the advantages which science and experience could yield with regard to the preservation of the fabric. The late Sir Charles Barry was the person to whom he had naturally looked for advice and assistance; and he found him extremely anxious that something should be done with reference to preventing the decay of the stone. Sir Charles Barry seemed to be well aware that the stone would not be found to answer the expectations formed of it; and he regarded with some favour the invention patented by Mr. Szerelmey. Under these circumstances he (Mr. Cowper) had the process submitted to Professor Faraday and Sir R. Murchison, and ultimately Mr. Szerelmey's process was applied to that portion of the building which was most in want of it. In his (Mr. Cowper's) opinion it was not what should be applied to the whole of the building; and, for his own part, he would rather wait until scientific persons had reported upon what covering or coating would be most desirable for the rest of the building. He for one would therefore be very glad if a committee of the Institute would go fully and carefully into the subject. From what he had been able to gather (and his opinion was much confirmed by the remarks which had fallen from Mr. Tite), he thought the application of water-glass would be the direction in which they were most likely to find what was wanted. It might be remembered that an application of it had been made to a portion of the river front some time ago; but he believed the experiment was not made under very satisfactory conditions. It had been used, however, lately, on the frescoes of the House of Lords, to the satisfaction of the artists themselves. Upon the present occasion he would rather not go into the scientific branch of the subject, but would confine himself to saying that the Government were anxiously looking forward with anxiety to the discovery of some proper and satisfactory means of preserving the walls of this magnificent structure. With regard to the observations of Mr. Burnell as to the places in which the decay had arisen, the subject had not yet met with sufficient attention. It was under the string courses that it occurred, but it was a very partial decay. He would not detain the meeting by any further observations, except to say that the Government were extremely solicitous that something should be done, and that as Parliament had liberally voted a sum of money to defray the expense of coating the building, it would be highly satisfactory to them to know that Science had discovered some means of effectually rescuing a noble public structure from the decay which seemed rapidly descending upon it.

Mr. G. G. Scott, in proposing a vote of thanks to Mr. Tite, observed that he had brought the subject forward in a very fair and complete form. When he said "fair," he did not mean to convey that Mr. Tite had not denoted the direction to which his own mind gravitated; for he had inclined to one particular view, and it was desirable he should have done so, because the man who had no opinion to offer one way or the other was not precisely the authority whom one would wish to consult. He (Mr. Scott) thought it was quite as likely as not that Mr. Tite was right in the view which he had taken. The mason attached to Westminster Abbey had tried a long series of experiments, and the time over which they were made extended from two to five years. This person (Mr. Poole, of Great Smith-street), who was most intelligent and experienced, would, he was sure, be happy to afford an opportunity to any member of the Institute to examine the results of his experiments; which, however, were rather hard to get at; as the stones operated upon were on the highest parts of the building. Of these experiments he might say that no one had been thoroughly satisfactory; all having failed, some slightly and others entirely. He was bound, however, to admit that all had been tried under great disadvantages; having been tried on Caen stone in rapid course of decay. With regard to the suggestion of referring the subject to a committee of the Institute, nothing could be better as far as it went. There was already a standing committee, the formation of which he himself had proposed four or five years ago, which had met but two or three times, but which had not made any report. He thought it would be desirable, should a special committee be appointed, to work in unison with the Institution of Engineers, who felt almost as great an interest in the subject as the architects. A joint committee, composed of members of both Institutes, would, he thought, be very desirable, as also the assistance of eminent chemists acquainted with the properties of the stone and the chemical action of the atmosphere upon them. It also occurred to him that they ought not to saddle the Royal Commissioners with the failure of the stone used in the New Houses of Parliament; because the stone so used was not, in point of fact, that which they recommended. The stone recommended was the Bolsover stone, of which they said the Norman tower of Southwell Minster was built. The commissioners, however, finding that the quarry from which they hoped to get the stone did not contain a sufficient quantity for their purpose, applied to another, a mile or two north of it, called Mansfield Woodhouse Quarry, from which the stone was taken, which was subsequently used in the lower portion of the New Houses of Parliament. It had since transpired that this was the very description of stone of which Southwell Minster had been built; and a mason who had been employed on the lower portion of the New Palace at Westminster had informed him that the Mansfield stone had stood, while the other had decayed. He remembered a circumstance occurring, of some interest in connection with the subject under discussion, to which he would refer, as showing the necessity of selecting stone with care. About the time when the New Houses of Parliament were commenced, he was employed to design what was called the "Martyr's monument," at Oxford. The committee were divided in opinion as to the best stone to select; some being in favour of the Roche Abbey stone, and others of the Bolsover stone. He suggested that perhaps they might be able to find a stone which would unite the good qualities of both quarries; and, after some search, he was fortunate enough to find an old quarry at Mansfield Wood (that, perhaps, from which the stone had been taken for Southwell Minster), which he had no hesitation in saying was the finest stone in the country.

Mr. Godwin, V.P., said that the effect of the processes to which the New Palace at Westminster had been subjected were most distressing: in some parts, it looked as if it had been whitewashed; so that, to all intents and purposes, we might as well have had compo Houses of Parliament. He thought, therefore, that the Government would do well to pause before they allowed any further application of washes on large surfaces, until they were in possession of a report from a competent and disinterested committee of architects and chemists. The great misfortune heretofore was, that the discussion of the relative merits of competing inventions had been carried on by gentlemen who were to some extent interested parties. There was a certain reason why they should see things in a certain light; and the consequence was that no result satisfactory to the public had been arrived at. When, some time ago, Mr. Burnell read a paper on the subject at the Society of Arts, he (Mr. Godwin) ventured to urge strongly that time should be given to test the merits of the several inventions; and nothing that had since occurred tended to alter the opinion that he then formed, in favour of a full, calm, deliberate, and disinterested examination. To Mr. Tite their best thanks were due, not only for the able and elaborate manner in which he had introduced this subject; but for his uniform attention to every subject calculated to advance their art; and he begged cordially to second the vote of thanks proposed by Mr. Scott.

The Chairman in putting the motion (which met with a unanimous response from the meeting) said that he hoped it would be in Mr. Tite's power to attend the next ordinary meeting of the Institute (February 4th *), when the subject would be revived. He also trusted that the many eminent scientific gentlemen now present would make it convenient to attend, and use the cards of invitation already forwarded to them. With regard to the committee, he was sure the council of the Institute would be very glad to give any assistance in their power to the House of Commons: at the same time, he thought that public expectation should not build too much upon the report of any committee which the Institute might appoint. If Mr. Ransome's remedy (which appeared to offer the greatest advantages) was in reality the best, it would be desirable to verify it; and, with that view, the best committee that could be appointed would be one by the House of Commons, including architects, engineers, and men of science; whose report would have far greater weight than any which could emanate from a committee of the Institute alone. This, in his opinion, would be the most feasible and satisfactory manner of arriving at a practical remedy, for an evil the magnitude of which they all deplored.

NOTES ON ARCHITECTURE IN RUSSIA.

ST. PETERSBURG.

THE approach to St. Petersburg by sea, which is the usual access from Western Europe, though not grand or majestic, is peculiar and interesting. As soon as the Gulf of Finland becomes narrow enough to allow both its shores to be visible at once, the first object which strikes the eye is the Toll Beacon, a tall tower standing alone amidst the waste of waters, as an advanced sentinel, to give the alarm on the approach of danger. The

* The paper on "Stamped Leather," announced in our last, will, in consequence of the adjournment, be postponed.

island and town of Cronstadt, with its bristling batteries and crowded docks, next heave in sight, and the panorama gradually closes in. On the right shore, Oranienburg and Peterhoff, with their palaces and villas embosomed in trees; on the left the external fringe of the numerous islands at the mouth of the Neva,—low and flat, but covered with verdure. The centre of the picture is still vacant; but, if the day be fine, and the sun unclouded, a distant bright spot may be descried shimmering on the horizon like a star of the first magnitude. This marks the golden dome of St. Isaac, and is the dazzling reflection from its glittering surface. As we steam along, turrets and spires gradually arise out of the deep; the shores converge; the green roofs of the buildings are discernible; small steamers are darting about; the huge hulk of a three-decker looms large on the view; and, at a sudden turn, the Neva, with its broad quays lined with lofty buildings, seems to open to receive us. We pass the dockyard and Arsenal on the right; and threading our way along the crowded river, run alongside the quay opposite the Custom House depôt.

The first appearance of the city from this access is very effective; from the expansion, the breadth, the colossal scale on which everything appears to be set out; and, even after a few days' sojourn, the impression made by the first *coup d'œil*, remains as striking as ever.

There is such a width about the streets, and the size and number of the public buildings are so great, as to give a gigantic character to the whole. The river Neva, at St. Petersburg, is about the width of the Thames at London-bridge. Standing on the only permanent bridge which spans its waters, the eye ranges on each side along a succession of enormous blocks of building devoted to public purposes, which it would be difficult to parallel elsewhere. Similar huge piles are found in all quarters of the city, to an extent, that, if the epithet be worth anything, St. Petersburg may, with truth, be styled a city of palaces. The whole of the buildings are white or stone colour, and apparently roofed with copper, which adds much to the effect, which is heightened greatly by the number of gilded domes glittering in the sun's rays. On a nearer survey, much of this apparent magnificence sadly deteriorates. The streets are wide, it is true, but most execrably paved with the roughest description of boulders, which are sunk into large holes, and seem as if they had never been repaired within the memory of man. Strips of the Nevskoi Prospekt, and other principal streets, are paved with wood in hexagons, some of which is new and in good repair; but, where it has been worn for some time, it is nearly as bad as the stones. This may be accounted for by the fact that, in this metropolis of a great empire, the primitive system is still maintained of every man paving the street before his own door in his own way. It need scarcely be added, that the dust in dry weather and the mud in wet, bid defiance to all scavenging operations, which are accordingly never attempted. The palaces and buildings, which look from afar so grandiose, on a nearer inspection turn out to be only plaster; columns, cornices, enrichments, statues, and all. This might be borne if the material were of good quality; but it is bad plaster, badly designed, and miserably executed. The general style is Italian, of a very poor and common-place description. In some cases the pure Greek has been attempted, as in the School of Mines, on the north bank of the river, which is fronted with a decastyle Doric portico à la Parthenon, flanked by colossal groups of statuary. All this looks very imposing at a goodly distance, but on approach it is found to be constructed of brick and plaster of the most wretched kind, and the groups of statuary to be plaster casts in a state of rapid decomposition. The green roofs of the buildings, which give the notion of an expensive construction in copper, are merely sheet-iron painted green. In fact, were the buildings in St. Petersburg left to the tender mercies of the elements for a few years, they would for the most part be reduced to their original mud, and leave few traces of their existence behind. Of course, there are exceptions to this, which I will now proceed to notice.

The sham character of the public buildings generally is redeemed, in the case of St. Isaac's church, the architectural glory of St. Petersburg. In this edifice the realistic principle of expensive material has been carried to its utmost limits. Polished granite, polished marble, bronze, and plated gold, compose the exterior; whilst the interior is one blaze of marble, mosaic, malachite, lapis-lazuli, bronze, gold, and painting. The alleged cost of the building is something fabulous; but as, in all Russian transactions, a large allowance has to be made for leakage, or, in other words, for the nefarious peculation of the officials, it is impossible to arrive at any just conclusion.*

The principle of the plan is the Greek cross of four equal arms. Each of the arms is covered by a barrel vault, and over the centre is raised a large tambour and dome. The square spaces at the angles are formed into chapels, covered with domical vaultings and cupolas, and opening into each arm of the cross by arched apertures. The east and west ends are prolonged one bay each, with similar vaulting and apertures, thus giving to the whole mass the form of a parallelogram, with projecting octostyle Corinthian porticoes on each face. The building stands on a polished stylobate of red Finland granite in three stages. The walls are faced with polished light-coloured marble. The column shafts are monoliths of granite, about 6 feet diameter and 50 feet high. The capitals are bronze. The pediments are filled in with bronze sculpture. Above the entablature of the main order a very lofty attic is carried to the summit of the pediments. The tambour of the central dome is very lofty, encircled by a ring of columns and surmounted by a gallery and attics, from which the dome springs. This, as already mentioned, is covered with burnished gold plates. Above the dome rises a small cupola, crowned with a golden ball and cross. The four corner chapels are crowned with bell turrets and cupolas, also covered with gold. Bronze statues of colossal size ornament the sky-line of the attic, and the entrance doors are bronze, richly filled in with sculpture. The whole of the parts are good in design and of excellent workmanship; but, on the whole, it must be acknowledged that the proportions are not harmonious. The three-staged stylobate does not raise the edifice sufficiently out of the ground. The columns and entablature above, though of large dimensions, are dwarfed by the extreme height of the attic and the predominating magnitude of the dome. Internally, the proportions of the building are much more pleasing. The coffered vaults are encrusted with gilt bronzes and enrichments. The tambour of the dome has the corners supported by colossal figures in gilt bronze. The walls are lined with costly marbles, inlaid and panelled. The easternmost bay forms the sanctuary, which is cut off by a screen called in Greek churches the Ikonostase. This portion is always the culminating point of decoration. Gold, silver, and precious stones are often profusely employed to add to their attractions. In the present instance the sanctuary gates are very elegant works of metallic art, and richly gilt. The screen is faced with ten fluted malachite columns, the shafts about 18 feet high. There are also two-column shafts of lapis-lazuli, about 12 feet in height. In the interspaces are pictures of saints beautifully executed in mosaic.

The Sepulchre of the Saviour, always a prominent object within the sanctuary, is of solid silver. The whole of the work is in good taste, and beautifully executed; but the general effect is rather too ostentatiously rich. The display wants repose, and gives rather too much the idea of *parvenu* finery. The *ensemble* is hardly equal either to the Madeleine at Paris, or the Basilica at Munich, though very good of its kind, and the best to be found in Russia.

The Kasan Church or Cathedral, situated in the Nevskoi Prospekt, was, until the erection of St. Isaak's, the great architectural feature of St. Petersburg. It is in plan a Latin cross; the nave seven bays in length, the choir and transepts three bays each. Internally, the nave is divided into five aisles by four rows of monolithic polished granite columns, about 30 feet in height. The central aisle is barrel-vaulted, without a clerestory. The intersection is crowned by a lofty tambour and dome. The architecture of the interior, with the exception of the noble granite columns, presents nothing remarkable. The altar, balustrade, gates of the Ikonostase, the gigantic candlesticks, and other ornamental portions, are solid silver. The profusion of this precious material in many of the churches, at a time when metallic currency has all but disappeared from the country and the paper circulation is absolutely irredeemable, cannot but suggest ideas of utilitarian appropriation, similar to what has taken place in other countries. The success of such a scheme in Russia, at present, would be extremely doubtful and perilous.

Externally, each arm of the cross is faced by a hexastyle Corinthian portico. From the portico of the north transept a semicircular colonnade of double columns sweeps forward, apparently in imitation of the fore-court of St. Peter's, at Rome. Although this colonnade is of considerable extent, the effect is small and feeble. The whole work looks low and stunted: the material is only brick, covered with plaster, of which patches have fallen off in places, displaying the spurious nature of the construction underneath.

The great majority of the churches, both in St. Petersburg and elsewhere, are built on the Byzantine model of the Greek cross, with the angles filled in, forming a square on plan, with a large tower and dome over the intersection, and four smaller ones over the angles. These are varied in form—round, square, or octagonal; sometimes low, just rising above the roof of the church; at other times taking the form of a lofty slender minaret. The domes are usually bulbous in form, generally overhanging the turrets on which they stand. The material is usually brick, covered with stucco; the detail and design exceedingly poor.

The church within the citadel deserves notice, both on its own account, and for its associations; being the burial-place of Peter the Great, and of all the succeeding monarchs. The architecture is common Italian, but of good proportions. At the west end rises a square tower, crowned by a metallic spire of the slenderest possible proportions. This spire is gilt; and, being very lofty, and crowned with a ball and weather-vane, in the form of a flying angel, is a very conspicuous object from every part of the city. The sanctuary screen and gates of this church are very splendid specimens of gilded metal-work.

From Peter's tomb a walk of a few hundred yards leads to the little wooden cottage which he built and resided in whilst carrying out his grandiose designs in the foundation of the city. It is a one-story cabin of three small rooms, preserved in much the same condition as he left it, with his chair, his table, some of his tools, and specimens of rough carpentry constructed by himself. Outside is preserved his boat, with a portion of its ragged sails. Over the whole a brick building has been erected to preserve the building from decay. His little reception-room has been converted into a chapel, hung round with votive offerings, some of considerable richness and value; for Peter, though not canonized,—which would hardly be decent, remembering his antecedents,—is still almost worshipped as a saint by his countrymen.

The church of the Præobajenskoi Guards has all its decorations of a military character. The interior is crowded with captured standards, principally from the Turks. The balustrading of the enclosure has the standards constructed of captured cannon, clustered together, from which are stretched massive chains, forming a succession of catenary curves. The clustered piers are surmounted by eagles.

The streets of St. Petersburg are all spacious; the leading thoroughfares very broad, and the alignment of the buildings for the most part regular. The numerous open places and squares, combined with the width of the streets, extend the area of the city much beyond what might be expected from its population, and render riding indispensable to every class of the population, except the lowest. Locomotion is provided by an innumerable amount of droskies, little four-wheeled open vehicles, into which two persons can barely squeeze. These carriages are drawn by very active, spirited horses, usually not more than thirteen or fourteen hands high, and swarm in the more frequented parts of the city, darting about at a breakneck pace over the rough pavement, which is enough to dislocate the bones of one unaccustomed to the infliction.

The leading thoroughfare in the city is the Nevskoi Prospekt, which extends in a direct line from the Admiralty-square to the monastery of Alexander Nevskoi, about four miles.

A few of the leading shops are handsomely fitted up and furnished; but the greater part are poor, and conducted without much enterprise or spirit, with a great lack of booksellers' shops and respectable hotels. The street architecture of the private dwellings is brick and plaster, with little or no pretensions to architectural design.

The palaces of the Imperial family, those of the nobility, the government offices, public institutions, and barracks, are very numerous; and, being large in their extent, and lofty in their proportions, form very striking and prominent objects in the city. They are nearly all of brick and plaster, badly executed.

The earlier constructions are Italian or French of the Louis Fifteenth style, such as the Winter and Annitckoff palaces, overloaded with ornament

* Illustrations and full particulars of St. Isaac's will be found in the *Builder*.

of very debased design. To these succeeded attempts at the pure Classical, such as the School of Mines and the Academy of the Fine Arts. The baldness and poverty of these designs are made more striking by the slovenly state of dilapidation into which they have been allowed to fall. Of late, it must be admitted, there has been a scintillation of a better state of things. The new palaces of the grand dukes, the rebuilding of the Hermitage Palace, the mansion now in course of erection by Baron Stieglitz, on the English Quay, and several private mansions, display better workmanship and material in construction, and a simpler and better feeling of the nature of architectural design.

The Winter Palace is an enormous building overlooking the Neva, built in the usual manner, faced with rough compo, in a very debased style. It must at the same time be admitted, that the variety of breaks and curves, and the sky-line fringed with statues, give a certain amount of picturesqueness to the mass, when the spectator is sufficiently distant to overlook the bad taste of the detail.

The interior comprises a wonderful succession of corridors, galleries, reception-rooms, throne-rooms, halls, &c.; many of very magnificent dimensions. These are in general sufficiently common-place in design, though good taste has been shown in the decoration, which is probably the emanation of another mind. In one of the reception-rooms, malachite has been profusely employed in the columns, chimneypieces, and elsewhere. The paintings in this palace are for the most part the merest daubs, with the exception of one, which is either a true Murillo, or a very good copy.

The greatest wonder about this building is the fact that, after the fire which consumed its predecessor, the present palace, which covers several acres, was erected and completed within two years. We can therefore feel no surprise that much of the work has been "scamped," or that the roof of the great St. George's hall fell in the evening after it was opened. The crown jewels are kept in this palace, not guarded with any very peculiar care, two sentinels merely keeping the door of the apartment.

The regalia consist of crowns, coronets, sceptres, strings of precious stones, comprising the usual paraphernalia, the great Pitt diamond being the most conspicuous; with other diamonds, pearls, amethysts, sapphires, emeralds, opals, &c., in great profusion and of priceless value.

The most interesting parts to me were the private apartments of the imperial family, occupying only a corner of this immense building, and of very moderate dimensions. The emperor's chamber is the only one which can be called very rich or large. The others might well become an English nobleman in point of size and the substantial elegance of their fittings and furniture. The bath is situated in a grotto to which there is a descent by a flight of marble steps, ornamented by fountains, niches, statues, &c., which display considerable taste. The architectural features of the interior are, for the most part, of plaster and scagliola.

The Palace of the Hermitage adjoins the Winter Palace, with which it has a communication by a common corridor. This immense building was erected by Catherine II. as a sort of Sans Souci, or retreat from state cares; but was subsequently occupied by the art-collections procured from various sources. The greater part was rebuilt by the late Emperor Nicholas about ten years ago, on a plan better adapted to its present destination than the old building, which was of the usual brick-and-mud-like stucco of which the older part of St. Petersburg is composed. The present building is of good design and construction, classical in style, with a decidedly German character.

The entrance portico has the entablature supported by ten colossal human figures, about 18 feet high, in polished grey porphyry. The vestibule into which this gives admission is adorned with rows of columns, having polished granite shafts. From this, entrance is given, right and left, to the sculpture galleries; and in front the grand staircase is carried up in one straight long perspective. The walls bounding the stairs at each side are surmounted by ten polished porphyry columns supporting the roof, and serving as screens to the return galleries at the head of the flight. These entrances and staircase are bold in conception, and noble in size and proportion. There is no littleness of any kind. Every thing is grand in scale, and satisfies the fullest idea of imperial magnificence.

The upper floor contains the gallery of pictures, which is well known in the artistic world, and which is particularly rich in the Dutch and Flemish schools. The rooms are lofty and of good proportions, and neatly embellished with arabesque ornament, but are most unfortunately designed as regards their purpose. With the exception of three large rooms, occupying the centre of the building, which are lighted from above, the whole of the vast range is lighted by side windows, low down in the walls. The consequence is, an amount of reflection which renders it scarcely possible to get a good view of any picture placed opposite the light; whilst, in other parts, the light is so deficient by contrast as to render the pictures in such positions equally invisible.

In some cases there are windows on both sides of the galleries. The cross lights thus caused create an amount of confusion which is distracting and painful to the eye. There are two long corridors lighted by windows, and ceiled with a succession of arches, and domed compartments; the pilasters decorated with arabesques, à la Raffaelle. These corridors call up reminiscences of the corridor of the Pinacothek, at Munich, painted by Cornelius.

The *rez-de-chaussée* is vaulted, and occupied by sculptures, a great proportion of which are either casts or copies from well-known antiques, with a few modern specimens. There are also a few specimens of ancient tombs, altars, and other reliques. One of the most interesting of these is an ancient Roman tomb, with the wooden coffin still existing, taken out and placed beside the stone sarcophagus which contained it. This specimen of ancient joinery exhibits the same mode of construction as that used at the present day. The stiles and rails are framed together with mortise and tenon, and the dovetail joint is used at the angles. Carved enriched mouldings are planted in the panels, and carried round as a cornice. Sooth to say, however, the work is roughly done, and somewhat flimsy in point of strength, having very likely been procured from some advertising cheap coffinmaker of ancient days. The tomb is curious as illustrating the practice, very rare in the Classical period, of interring the body without combustion. The number of specimens of Russian minerals in porphyry, marble, granite, and malachite vases, and other things, is very large, and deeply interesting.

The Marble Palace, the Taurida Palace, and many of the other public buildings, are large and imposing, but present no features worthy of special notice.*

J. A. PICTON.

COMPETITION.

Greenock.—The congregation of Free West Church (the Rev. Mr. Nelson's) having received designs, for their proposed new church, from several Glasgow and Edinburgh architects, have selected the design submitted to them by Mr. Honeyman, of Glasgow, under whose direction the work will be commenced, as soon as the season permits.

ARCHITECTURAL EXHIBITION.

THE committee have published a report in which they say they "have resolved to relax regulations hitherto in force, as follows, viz.,—to pay the carriage to town, and back again, of all drawings from the country, and they have also determined that Exhibitors shall have free tickets of admission during the day, reserving only the evening meetings and lectures for subscribers exclusively, and holders of season tickets." The next exhibition will open at the conversazione, on Tuesday, the 2nd of April, and on the following day to the public. The account shows a balance of 65*l.* 1s. 3d. in the hands of the treasurer, and 100*l.* invested by donors in the Architectural Union Company in favour of the Architectural Exhibition.

CHANGES IN POPULAR AMUSEMENTS.

AMONGST those practices and observances which are rapidly changing, in these our days, are town and country fairs, which, half a century or less ago, were thought of and talked of almost all the year round with much interest by pleasure seekers and persons in various lines of business. The decline of these ancient institutions, however, will be noted with but little regret, since the purposes for which statute fairs for general merchandize were instituted have been in other ways better met; and their disorderly assemblages led to much immorality, dissipation, and mischief. At some of these fairs took place the hiring of servants; and, in the spaces set apart for this purpose, men and women, and young lads and girls, stood in rows (as in some places, indeed, they still do), to be bargained for like herds of cattle.

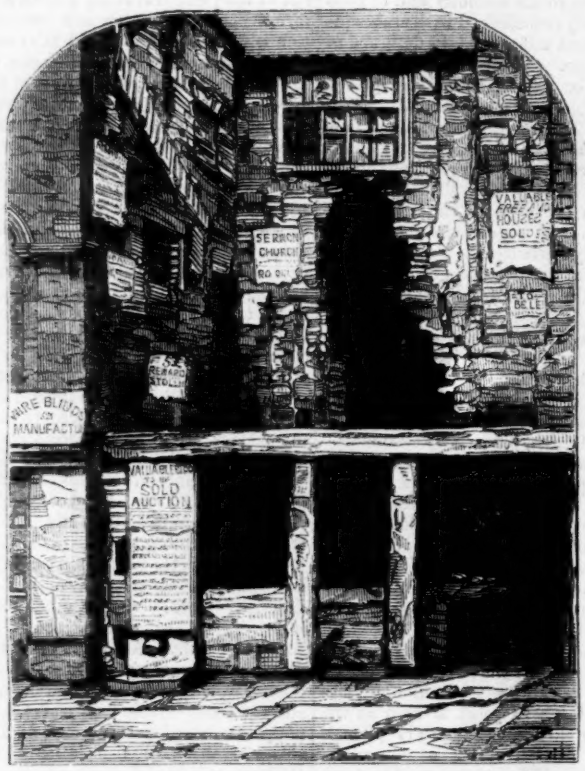
With the decline of fairs the wandering exhibitions, once so familiar, have also fallen considerably out of use; and travelling giants, dwarfs, and performing animals are now at a discount. In connection with the old-fashioned fairs may be remembered the charlatans, mountebanks, and quack doctors, who would tell the natives of their wonderful abilities. This one had cured the Emperor of China of a fever and ague at Pekin in one day, and drawn a tooth of the Great Mogul of India at Delhi on the next. The distances even from continent to continent were as nothing to these professors, who would undertake the cure of all the ills of suffering humanity, in the most rapid and off-hand manner. There were also galantee and peep-shows, and puppets, which were worked to the great amusement of many. The exhibition of puppets in England seems to have been of considerable antiquity: in Queen Elizabeth's reign they were common in this country: at Bartholomew Fair they were famous. Ben Jonson makes his puppet showman at that place say,—"Oh, the motions that I, Lanthorn Leatherhead, have given light to in my time, since my master Pad died! Jerusalem was a stately thing: so was Nineveh and the city of Norwich. But the Gunpowder Plot,—that got a pretty penny . . . Your home-born subjects prove ever the best: they are so easy and familiar. They put too much learning into these things now-a-days!"

Of late years the puppets in use were of small size, and their performance was of but a commonplace description: they were of much more importance, however, in Charles the Second's reign. In the summer of 1662 Samuel Pepys saw the puppet plays in Covent-garden; and, in the autumn of that year, they were exhibited before King Charles and the court, in the palace of Whitehall. These puppets were about the size of life. Although this exhibition was originally introduced by Italians, one Mr. Powell, an Englishman, made improvements so great that he defied all competitors. This puppet showman exhibited the drama of "Dr. Faustus" to crowded houses throughout two seasons, to the utter neglect of good plays and living players. In Queen Anne's reign Powell exhibited his puppets under the piazzas of Covent-garden. Respecting this, the ancient under-sexton of St. Paul's Church, Covent-garden, says, to the *Spectator*, that he now found his congregation take the warning of the church-bell, which he had rung daily for twenty years for morning and evening prayers, as a summons to Powell's puppet-show under the piazzas, instead of a summons to church. "I have placed my son," says the bellman, "in the piazza, to acquaint the ladies that the bell rings for church, and that *it* stands on the other side of the Garden; but they only laugh at the child."

After a long term of fashion, and great success, the grown-up sight-seekers got tired of the puppets, and they were considered only fit for the amusement of children. In the early part of the present century, however, there was a theatre of this kind in the vicinity of Fleet-street, where "Romeo and Juliet," the "Babes in the Wood," &c., were represented. Now, with the exception of some very small puppets danced on boards by boys, almost the only remnants of this once common amusement, besides the lately somewhat celebrated Marionettes, are Mr. Punch and his wife Judy; and these are also likely, before long, to become amongst the things that were. A few tumblers, of no great skill, Ethiopian serenaders, of modern date, and the organ-men and other foreign musicians, may still be seen in our streets; but generally the old exhibitions in the streets are no longer visible, and the "fun of the fair" no longer grows "fast and furious."

Of one very ancient species of popular amusement, which had just become obsolete in this country, after a "run" of many centuries, there has recently been rather a curious revival, in connection with, *par excellence*, the most advanced place of amusement for the people which till now has ever been conceived,—namely, the Crystal Palace: we allude to the "shadow pantomimes." Something very similar, if not the same, was long popular in this country, as it still is in Algeria, Arabia, and other countries in the East, under the name of "the Chinese shadows." Not many years since this exhibition stood its ground in England even against the magic lanthorn, in the shape of "My Mother's Shoe," "Hob in the Well," and other approved children's "dramas;" and in hornpipes, such as that of the sailor, who danced till each limb separated from the other, and "went on as before," on its own hook. The "dissolving views" were thought to have extinguished the "Chinese shadows;" but here they are again, in the Crystal Palace, with modern modifications it is true, though scarcely as yet with modern improvements.

* To be continued.



THE CONDITION OF THE CLERKS' WELL, CLERKENWELL.

THE CONDITION OF THE CLERKS' WELL, CLERKENWELL.

WE cannot willingly lose old foot-prints. We have before directed attention to the Clerks' Well, and regret to find that each week it seems to be in a worse state. So ruinous has now become the place, that it may be feared this interesting record, which takes the mind back to many past events of our history, will disappear. For more than a thousand years this site has been well known to Londoners. Our engraving will show the state of wreck now presented there. The inscription which sets forth the situation and former fame of the Clerks' Well is left almost alone: the building in which the inscription was placed, in the year 1800, by two worthy churchwardens,—William Bound and Joseph Bird,—has fallen to pieces, and the background is a receptacle for nuisances. Many of the old London marks have, to the regret of all right-thinking persons, passed away, and others have been destroyed. Let us hope this fate will not befall the Clerks' Well. The well is one of the three in the neighbourhood to which, according to Fitz-Stephen, the scholars and youths of the City, in days long past, did go to take the air abroad in the summer evenings.

Stow gives the names of several wells not far off "Skinners' Well,"—"Fag's Well" (otherwise Ladwell), and "Rede-well,"—adding that, in his time, they were so filled up "that the places where they were are not now to be discerned." From these wells, as appears from the same historian, the "River of Wells" took its name; "for, having the overflowings into the aforesaid river, they much increased its stream, and in that place gave it the name of Wells." Notwithstanding the importance of this stream, the cluster of houses which, in course of time, formed a little village in the neighbourhood of the Clerks' Well, was so called, and gave name to the now extensive and populous parish in which it stands.

The custom of meeting at wells or fountains, for conversation or amusement, is one of very high antiquity, and may be clearly traced to an Eastern origin. Fitzstephen has made express mention of this custom in the suburbs of London. Among the recreations here adopted upon such occasions, or more probably on public holidays, were, it seems, dramatic entertainments. Fitzstephen tells us that "London, in place of stage plays and scenic decorations, hath dramas of more sacred subjects,—representations of those miracles which the holy confessors wrought; or of the sufferings wherein the glorious constancy of martyrs did appear;" and it is an undoubted fact sacred dramas were performed on this spot before the reigns of Henry II. and Richard I., which were the era of Fitzstephen. Cramwell, in his history of this parish, suggests that the observance of this custom here may be of more remote antiquity;—that *Clerken* being an Anglo-Saxon compound, the custom must be referred to that period.

To this place, when all was green and pleasant around, and the river Fleet ran clearly along,—centuries before Shakespere's days,—many a gay cavalcade has come on high days and holidays to see the acting of the clerks: frequently Royalty and the Court have come here; and the merry citizens, in the picturesque costume of former times, have wandered from the City over the fields to see the bravery. But we have before more particularly referred to this history, and would now remark, that in 1673 the Earl of Northampton presented the parish with a spring, during pleasure, for the use of the poor. The overseers, and, as it seems, much to their discredit, immediately leased it to John Cross, brewer, for twenty-one years, at 40s. per annum. This seems to have been the original Clerks' Well.* To the observation by Stow, already mentioned, Strype, writing about a century and a half ago, after mentioning the damming up of the wells, added, "and so remained and altogether unknown until within these forty years or thereabouts, when, upon some occasion, they, or some of them, were discovered; and, being found mineral waters, of the nature of Tunbridge, they became greatly frequented by citizens, and used as chalybeate waters, for correcting hypochondriacal distempers." The same writer then gives the relation, showing that this is the spring which was presented to the parish by the Earl of Northampton in the above-named year, and from which presentation the parishioners derive the ownership of the well, together with the adjoining ground. He says:—"The old well of Clerkenwell, and from whence the parish had its name, is still known among the inhabitants. It is on the right hand of a lane that leads from Clerkenwell to Hockley-in-the-Hole, in a bottom. One Mr. Cross hath this well inclosed; but the water runs from him into the said place. It is inclosed with an high wall, which formerly was built to bound in Clerkenwell-close [this was the Nunnery Close, the west wall of which is known to have taken this direction, leaving the reservoir of the fountain just outside]; the present well being also inclosed with another lower wall from the street. The way to it is through a little house, which was the watchhouse. You go down a good many steps to it. The well had formerly ironwork and brass-cocks, which are now cut off. The water spins through the old wall. I was there, and tasted the water, and found it excellently clear, sweet, and well tasted. The parish is much displeased, as some of them told me, that it is thus gone to decay, and think to make some complaint at a commission for charitable uses." Mr. Cramwell is of opinion that the last words should be "the stewards for promoting charity," and says,—"Though the water is now recovered for general use, there is reason to believe that the causes of its decay are rather increased than removed. There is some apparent obstruction at the fountain-head, as at present it cannot be so much as said to *spin* through the old wall, but to make its way with great slowness and difficulty. The spring," continues Mr. Cramwell, "is approached from its receptacle by steps erected no doubt at the well's restoration, since the time of Strype." The inscription mentioned has been placed, and we trust, particularly as the property belongs to the parish to which it gives name, that it will be duly cared for.

* In the account of the parochial estates of the parish of Clerkenwell, 1826, is "Clerks-well, in Ray-street, and building over the well."

THE ROYAL ACADEMY.

AT a meeting of the body, held on Tuesday last, Mr. Poole was elected an Academician, and Mr. E. M. Barry (architect), Mr. Faed, Baron Marrochetti, and Mr. Richard Ansdell, were elected Associates.

Mr. Poole gained his election by one vote against Mr. Boxall.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE ninth meeting of the session of the above society was held on Wednesday, the 23rd ult. Mr. J. M. Hay, presided. Mr. J. A. Picton laid before the society the designs, plans, and photographic views of the new building which Mr. William Brown is now erecting on the west side of the Town-hall. The structure will be in the Italian style, and will cover 1,850 square yards of ground. The whole of the basement is granite, and the remainder of the building is of Welsh stone, from the neighbourhood of Ruabon. After some other matters had been disposed of, Mr. Picton read "Notes on Architecture in Russia," part of which will be found in our present number. The next paper will be by Mr. W. H. Hay, on "The Construction of Turkish Baths."

ST. MARY'S FREE CHURCH, EDINBURGH.

THIS church, now in course of completion, stands at the east end of Albany-street, and when finished will be one of the principal ecclesiastical ornaments of Edinburgh The congregation had, since the Disruption, worshipped in a small unpretending place in Barony-street, but increased so much that they determined to expend a sum of 5,500*l.* for a new church, towards which the late pastor gave 550*l.* Ultimately it was resolved to increase the sum to 7,000*l.*; but, owing to increased height of spire and other additions, it is thought that the total expense cannot be less than 10,000*l.*

The design was selected from about twelve competition plans, the prizes being 50*l.*, 30*l.*, and 20*l.* The site was one extremely difficult to deal with, requiring a great amount of underbuilding; and, from the steep descent, demanding some skill in being usefully and effectively treated. The style adopted is the mixed Perpendicular Gothic or Tudor of the time of Henry VII. The doorway in the basement of the tower forms the principal entrance, the arch mouldings of which contain some bold carving. It has but recently been decided that a clock is to be placed in the tower, the gift of the late Mr. James Buchanan. From the top of the belfry rises the spire of four bold, richly-moulded ribs, filled in with foliated tracery. The whole height is 164 feet from the pavement.

To the west of the church a small piece of vacant ground has been used for the erection of a dwelling-house, with oriel traceried windows and dormers in the roof.

In the interior of the church are end and side galleries, supported on iron columns, which extend up to support the roof, terminating in foliated capitals. Accommodation is provided for 1,000 persons, and below the church are class-rooms, and a house for the beadle.

Mr. J. T. Rochead, of Glasgow, who is the architect, gained the third premium for the War Offices in the great Government competition, and is also the author of the first prize design for the Wallace monument.

ST. MARY'S FREE CHURCH, EDINBURGH.——MR. ROCHEAD, ARCHITECT.

GEMS AND GEM-ENGRAVING.

THE engraving of gems was a department of art in which the ancients excelled, and in which they have bequeathed to us exquisite specimens of their genius and skill. To the historian, archæologist, and artist, the minute but comparatively imperishable records of ancient glyptic art have subserved important uses; and it is surprising that so interesting and valuable a branch of art should have been so long neglected, as it has been, in this country, except by the gem-collector: it has not even met with a historian, it may be said, till now that a very competent author, the Rev. C. W. King, has published his own memoranda, as an amateur and collector of ancient gems, and given us something like a history and general account of art-works of this interesting and valuable description.*

The origin of the art of gem-engraving was undoubtedly Oriental and of extreme antiquity; and it was not till a comparatively late epoch that it was introduced into Greece and Italy. The Greeks laid no claim to its original invention; and while, in early Greek times, there is no trace of such uses of engraved surfaces as that of sealing up treasures or tablets, or investing with official dignity; we find, in the farther East, as far back as historical records go, that signets held an important place, as among the Assyrians and the Egyptians: Pharaoh's signet, given to Joseph as a token of official investiture; Rhampsinitus's treasure-cell secured by his seal (Herod. ii. 121); Judah's signet given as a pledge; the temple of Belus sealed with the royal signet, &c. &c.; all go so far to prove that such uses of engraved surfaces were known in the East from time immemorial, although they do not distinctly prove the extreme antiquity of gem-engraving. Seals of vitrified clay, such as those of Assyria and Egypt, may or may not have been the forerunners of engraved gems; but at all events we have no such indications among the Greeks of early practices such as these, akin as they were to those to which engraved gems have always been put, ever since such gems have been known to have been produced. The very forms of the Egyptian scarabs in clay and soft stone look like the prototypes of those of engraved gems. These and other early signets, too, were carved or engraved by cutting instruments, though on comparatively soft material; the earliest Assyrian cylinders being of serpentine, and the Egyptian scarabs of steaschist and clay.

The invention of the beautiful art of gem engraving is confidently ascribed by Mr. King to the seal engravers of Nineveh, shortly before the reign of Sargon, the date at which cylinders first appear, made out of the "hard stones,"—crystal, onyx, and agate,—charged with engraving, executed precisely in the style of the Archaic Greek intagli, and marked by the same minuteness of detail and elaborateness of finish; and amongst these the signet of Sennacherib is quoted as an example fully illustrative of this assertion, being made of one of the hardest substances known to the lapidary, namely, the Amazon-stone, and bearing an intaglio which, by its extreme minuteness, and the precision of the drawing, displays the excellence to which the art had even then already attained. It may be questioned, however, whether this do not prove rather too much for the decision of the point maintained; since such perfection in an art implies a still more distant and indefinite origin; and ought rather, one would think, to lead the careful archæologist to the safer conclusion that the Ninevites possessed the earliest known examples of gem-engraving, of which they themselves were, probably, the artists; but that whether they were the original inventors of an art which had already reached so high a degree of development does not appear. It may even be doubted whether either the Assyrian or the Egyptian clay signets were really of more ancient origin than the invention of gem-engraving under such circumstances. At all events, the Egyptians (if not, too, the Assyrians themselves) for ages practised the art of carving signets, &c., on soft materials, *after* the date of the production of the Assyrian stone signets just referred to, and although there is abundant evidence of a close commercial intercourse between Assyria and Egypt in these ancient times. Even in the era of the Ptolemies the Egyptians had not generally adopted the more laborious process; and the signets of the kings and nobles were engraved on gold, and those of lower rank on still softer material. In the age of Theophrastus the best stones for engraving gems were still imported from Armenia.

The Phœnicians, while allies or tributaries of the Assyrian and Persian kings, took up the art of engraving on hard stones, although the Egyptians neglected it; and they diffused the knowledge of this and other arts among the Asiatic and Insular Greeks. Thence to Greece proper the transition was rapid, and the signet came into general favour, especially as a finger-ring, instead of, as in Asia, a bracelet or necklace. Signet rings must have attained universal popularity in Greece before 600 B.C. About this time Solon prohibited gem-engravers from keeping impressions of signets once sold. Herodotus also speaks of the famous emerald of Polycrates, and the reputation of its engraver, Theodorus of Samos. Camei were first introduced in the time of Alexander.

Etruria, like Greece, derived the art of gem-engraving from an Asiatic origin; and, like the Phœnician, the Etruscan retained to the last the beetle or scarab form.

The Romans derived the scarab signet from the Etruscans, and the finger-ring from the Greeks. Gem-engraving, like the cognate art of die-sinking, however, attained to its highest perfection first in Magna Grecia and in Sicily. It was doubtless from Sicily that the use of gold rings was introduced amongst the Romans. Engraved gems then also began to be admired by the latter, and employed for signets. Under Augustus, gem-engraving in all its branches reached a high point of excellence, especially in the department of portraiture; although the Roman never equalled the Greek in the best gem-engravings of each. Under the patronage of Mæcenas flourished all the glyptic talent of Greece,—Dioscorides, Solon, Aulus, Gnæus,—either attracted to the metropolis of the world, or brought there as the freedmen of those nobles whose family names they assumed. This also was the age *par excellence* of camei, whether portraits or groups, or single figures: the sardonyx was supplied for them from the interior of Asia. The trade of paste-making was also then carried to an enormous extent for the poorer classes. This trade ceased quite suddenly in the third century, together with the productions of the gem-engraver himself. Camei were often reproduced in pastes while the paste trade flourished: many of the paste camei of this era are admirable imitations, especially those reworked; but camei in sardonyx were also produced in large quantities, and many of them are extraordinary for art and material.

At length, in the fifth century, Roman gem-engraving entirely vanished, its last traces fading away in the swarms of ill-cut and worse drawn Abraxas, jaspers, and Manichean amulets. The signets of the Byzantine nobles were of metal. The sole remaining evidence of the existence of the Byzantine school is a few miserable camei of religious subjects.

Throughout the west, for ten centuries (from the fall of Rome to the Italian Renaissance), gem-engraving was entirely unknown. The signets were all seals of metal or antique intagli set in rings. Official seals, in the Middle Ages, were large and elaborate designs cut upon a metal matrix. The demand for antique intagli to be set in personal signets and as talismans, however, was enormous.

But with the first dawn of the revival in Italy the art,—totally extinct in the West, and confined in the East to convolutions of cyphers and monograms, as in the Persian empire,—not only woke up but attained to its second maturity in a single generation, rivalling its ancient parent in beauty and skill; and, in one class, the camei, far surpassing her in numbers, and perhaps in excellence. In the fifteenth century, however, the art was simply imitative of the antique, although the nielli of that period were quite on a level with the ancient work of Dioscorides or Aulus, as far as drawing went. In the next, or cinque-cento century, the best lapidaries did not servilely copy the antique; but during the century last past the engravers contented themselves chiefly with making repeated copies of certain celebrated gems, and placed their highest ambition in the ability to pass off their own work as true antiques. The principal engraver, John Pichler, was an exception, and so were Natter, Rega, and a few others. On the whole that was the age of forgeries, pastes, and tamperings with the genuine antiques,—defiling the pure course of the art, and puzzling the modern archæologist. Hence, probably, the sudden and total decline of the taste for engraved gems since the beginning of the present century.

The few English gem-engravers who have ever attained to any celebrity all flourished during the latter half of the eighteenth century. Brown, Wray, Marchant, and Burch may be named. Their works were all in intaglio, but inferior to those of the Italian school, the last of whom, Pistrucci, survived till within a few years of the present time. Even in Rome, all that remains of this once numerous profession are a few mechanics, rather than artists, who manufacture the cameo onyx studs so largely purchased by visitors, and which are mere trade articles finished off by the dozen at the lowest possible expenditure of time and labour. There are also some who still forge the mediocre antique intagli to order. The only class with any pretension to taste and skill are the cutters of camei in shell.

Thus the art of engraving designs upon hard and precious materials may be said now to have closed its career of thirty centuries in a phase similar to one of those in which it first started in the dawn of western civilization.

The author of the work before us, to which we are mainly indebted for the materials of the preceding brief sketch, gives some interesting information as to the means adopted, both in ancient and modern times, in the engraving of gems. In treating of proofs of antiquity, he says:—

"A very satisfactory proof of antiquity is found when the engraving appears to have been executed almost entirely with the diamond-point; that is to say, when all the hollows seem cut into the stone by a succession of little scratches repeated one upon the other, while the deeper parts of the design show that they have been sunk by means of the *drill*, a tool with a blunt and rounded point, producing a succession of hemispherical hollows of various dimensions. Some intagli even occur, entirely scratched into the stone by means of the diamond-point alone, especially the works in shallow relief of the Etruscan and early Greek epoch; and, as a general rule, according to the observation of the famous gem-engraver Natter, the extensive use of the diamond-point is the great distinction between the antique and the modern art. The use of the diamond-point is particularly observable in the execution of the hair of portraits, when of good work, of almost every epoch of antiquity, where it produces an admirable and natural effect which cannot be given by the modern instruments."

As to these latter, we are told that,—

"The principal among them, by means of which all the above-named operations, both of producing lines and hollowing out depressions in the design, are carried out, is the *wheel*, a minute disc of copper, fixed on the end of a spindle, which is put into rapid motion by a kind of lathe. The fine edge of this tool, moistened with oil and emery or diamond dust, speedily cuts into the hardest gems; and, by repeating and prolonging the lines thus produced, the minuter portions of the design are executed. The larger and deeper hollows are still sunk by means of a round pointed drill, substituted for the cutting disc, and acting just as the ancient drill; which last, however, appears to have been always worked by the hand, by means of a bow, in the same way as the similar tool still used by jewellers. The modern method, though greatly expediting the operation—for Mariette speaks of Smart, a celebrated English engraver of the last century, finishing several good portraits in one day,—yet renders the operation more mechanical and stiff; whereas the ancient *sculptor*, working with his diamond-point, like the etcher with his needle, had all the freedom of hand and boldness of the latter artist."

The peculiarities and modes of cameo working are thus described:—

"On minutely examining a really antique cameo, the design will appear to have been cut out of the coloured layer by the repeated strokes of a tool of the nature of a chisel, which left a series of uneven surfaces, to be polished down more or less by a subsequent operation. The outline of the figure always fades away into the field of the stone, which often shows minute traces of the upper layer not completely cleared away from it; and the design is never undercut, as it often is in modern camei, for the purpose of throwing it out more from the field. The ground itself is often left uneven and not completely cleared of the upper layer, having evidently been scraped down by means of a narrow cutting instrument, which could not be made to bear upon a large surface at one and the same operation. Hence these works, though extremely effective at a distance—the purpose for which they were intended by the engraver—appear rough, and, as it were, lumpy, on too close an inspection. This unevenness of the ground of the design has been pointed out by some writers as the unvarying test of antiquity in a cameo; but this is not exactly correct, as the same peculiarity is equally manifest in the works of the earliest artists of the Revival."

We fear, however, that we have already expended too much space on Mr. King's very able volume, and its no less interesting subject. The work contains many engraved examples in illustration, and is altogether a very choice and instructive one, and stands alone, as almost the only one of its kind. Whether it will tend to a revival of the ancient art remains to be seen: a more elegant and fitting one than cameo-cutting, or even gem-engraving itself, as an employment for educated and tasteful womankind, in our advanced era of the world, cannot well be conceived.

* Antique Gems; their Origin, Uses, and Value, as Interpreters of Ancient History, and as Illustrative of Ancient art: with Hints to Gem Collectors. By the Rev. C. W. King, M.A. London: Murray. 1860.

YORKSHIRE ARCHITECTURAL SOCIETY.—The annual meeting of the members of the Yorkshire Architectural Society was held in the School of Art, Minster Yard, in the city, on Wednesday 23rd; the Ven. Archdeacon Churton in the chair. The Rev. T. Bayly (one of the local secretaries) read a report.

"THE BATTLE OF THE STYLES."*

IN making some observations upon what architects may with justice call "The Battle of the Styles," I am not actuated by a desire to encourage the combatants, as I consider that already in the discussion of this subject too much warmth has been evinced on both sides. The arguments brought forward have occasionally savoured of the bitterness of personal enmity, and have consequently lost that power of conviction that a calmer tone naturally exercises over reflective minds. Nor is it my intention, by recapitulating the numerous arguments that have been deduced in favour of the Classic or the Gothic styles, to reopen the whole subject, and thus break the apparent truce that at present happily exists between the parties. I feel that, in bringing forward this subject, I am exposing myself to the critical acumen of the enthusiasts of both sides; but I shall endeavour so far to generalize as to avoid the necessity of quoting the opinions or mentioning the names of any particular individual. By adopting this course, I hope to avoid giving offence to the champions of either side; and, although I shall be compelled, in the course of the following remarks, to differ from some of my professional brethren, I trust that they will give me credit for the desire not in the slightest degree to hurt the sensibilities of any one. I feel that in the discussion of a topic of such importance to us, and also to the progress of architectural art in this country, the more calmly we can study the points of the question, and free the argument from that special pleading that too frequently indicates a selfish view of the subject, the more likely we are to arrive at a conclusion that shall reflect honour on ourselves as a profession, and prove a real impetus to the original and tasteful development of our art. At the same time, I believe it to be in the true interest of art to state with boldness such views with regard to it as appear to me to be grounded on common sense, and a knowledge of those principles which govern its practice. And as it is despicable to permit the judgment to be biased by interested motives, or envy to dwarf that appreciation of the works of others which is inherent in generous minds, I trust that whatever opinions may be advanced by me this evening, you will give me credit for perfect sincerity when I say, that in dealing with this subject I have simply a desire to promote the successful study of our noble art.

Unfortunately the battle that has raged between the advocates of the Classic and the Gothic styles, has not been confined to members of the profession, but has been taken up with even greater virulence by those who do not belong to it. The champions on both sides have too often shown evidence of being partisans rather than true lovers of art, and have often unworthily availed themselves of the mere illogical reasonings or chronological errors of their opponents instead of confining their argument to the discussion of the true principles of art. Nothing, perhaps, will prove the animus of some writers upon this subject more than the vituperations and sneers with which they have frequently interlarded their literary efforts to prove the correctness of their opinions. This shows itself in the mere descriptive terms applied to the various periods of art, such as "Pagan," "Christian," "National," "Ecclesiastical," &c. &c.

In dealing with this subject, it will, perhaps, be convenient to consider the question, firstly, as it affects the architectural profession; secondly, as it affects architecture and the public generally.

In treating of the first division of my subject, I feel that I am addressing those who have the same interest in the advancement of the true principles of art as myself, and that, therefore, however we may differ in views as regards the details of the question, our main effort should be in the same direction. Until within the last day or two I was unaware that Mr. Kerr had, during the last session of the Institute, read a paper upon the "Battle of the Styles," and having perused a report of it, I may here state that I almost entirely concur in the views therein expressed. There are some points, however, upon which Mr. Kerr has not touched, concerning which I trust I may have something to say that may interest you. Those who have watched the various phases of the argument, will have observed that both sides have shown some qualities to be admired and encouraged, and also unmistakeable symptoms of other qualities to be condemned as unworthy of the votaries of a liberal profession. If we look at the ability with which the whole question has been discussed, I agree with Mr. Kerr in thinking that it augurs well for the future study and practice of our art. But on the other hand, when we reflect upon the bitterness and sarcasm that have too often prevailed, we are led to infer that there is some hidden motive for such unwonted excitement.

I would ask, why all this acrimony and anxiety—Why this desire to raise up one style of art at the sacrifice and ruin of all others? How is it that there are those among us who are so blinded by enthusiastic bigotry that they deny the beauty of those periods of art which produced the monuments of ancient Greece and Rome, of Herculaneum and Byzantium, of modern Rome, Venice, and Florence. Again, on the other side, there are some who look upon Gothic architecture as the barbarous growth of the dark ages,—as "the child of Feudalism nursed by Popery." But why persist in applying irrelevant and ungenerous terms in conducting an argument that should have for its sole aim the establishment of the true principles of taste and the successful development of architecture in this country? The temporary triumph of the pamphleteer of to-day over him of yesterday will only be gratifying to his immediate partisans. Such literary "escapades," although they may affect a few, are not destined to influence art to any extent in coming generations; and I fear we may sometimes measure the interested motives of their authors by the amount of vituperation heaped upon the heads of those who are unfortunate enough to differ with them on this subject. It is much to be regretted that the very terms that have been applied, or rather misapplied, during the discussion have been the indirect cause of much misunderstanding on the part of the public, and of ill-feeling amongst members of the profession. We should endeavour to consider this subject in the most liberal and cosmopolitan spirit. To be really great in our profession, we must set aside all mean or sordid views. To be *learned in art*, the mind must be carefully stored with examples of the styles of every period. To be *successfully original* in art, the mind must be prepared with a true knowledge of the principles of composition and proportion, combined with an unfettered imagination. To be *chaste in art*, both the mind and the hand must be highly cultivated. These remarks may be considered by some as so many truisms, and I freely admit that they are; at the same time I humbly submit that they are truths which are sadly overlooked in the education and practice of modern English architects.

From what I have just said it would appear that an architect, to be successful in the practice of his art, should be *liberal*, should be *learned*, should be *original*, and should be *chaste* in design. Of the first-named quality I am sorry to say there are too few instances. This does not proceed from the want of this quality in the minds of the majority of architects, but from the exceedingly restricted means of professional education that students generally have at their command. In all probability a young architect enters the office of his master, who may be principally employed in designing Gothic churches and chapels, or Italian banks or warehouses,—or, what is more fatal still, is engaged in the more mechanical part of his profession as a district surveyor, or surveyor to some public company, and who, therefore, cannot be expected to devote much attention to the higher branches of art. Neither of these opportunities is favourable to the development of liberal or cosmopolitan ideas of art. With regard to the second qualification,—that he should be learned,—I will only remark that this is a matter of previous education and persevering industry. As respects originality, I do not mean that eccentric originality so distressing to those of refined taste. With regard to chasteness in design, I consider this a portion of the argument that has not hitherto received the attention which it deserves. To those who have observed many of the executed and unexecuted designs of the present day with a critical eye, I think that it will be admitted that there has grown up among some of our younger men a tendency to a flaunty style of designing, without pretension to any degree of elegance, which asserts itself by what is called "*striking the eye*" of the beholder. But I may even go further, and say it occasionally presents itself in the shape of some hideous eccentricity, adopted solely, in consequence of the novelty of the pattern (for such only can we call it). This kind of art never yet made a Phidias, a Michelangelo, or a Raffaelle, and is in total opposition to the chasteness to be found in the best schools of Classic and Gothic architecture. We need not seek far for the probable cause of this (which has been aptly termed "Jemmyism" in architectural art), when we reflect that the authors have, for the most part, been deluded into the idea that they could learn the whole art and mystery of architecture in the short term of three years. Although I feel that I am moving on tender ground, I cannot help observing on the very careless style of drawing that has been lately introduced into our Architectural Exhibition. I refer to the cross-hatching pen-and-ink style so freely used and abused. There are some who, from their real knowledge of art, can handle this manner of drawing in a masterly style; but unfortunately there are many imitators who, although they may be unable to deceive the profession, yet with these scratchy attempts at the picturesque, they succeed in misleading the uninitiated, as they exhibit the proposed design in such a state of confusion that what should represent ornament is taken for accidental blotch, and what is intended for blotch proper is supposed to be ornament. As I have before stated, perhaps the excuse is to be found in the very short period for which articled pupils are now taken rendering it impossible for them to master the mere mechanical difficulties connected with their profession, much less those great principles of art, without a knowledge of which they can never be expected to attain success. I have before referred to the fact that there are many amongst us who, from studying under architects who were essentially one-style men, have naturally a strong feeling in favour of that style to the prejudice of all others, and who decry the modern eclecticism, not only from bias of old associations, but perhaps from the interested motive of self-preservation.

In passing to the second division of the subject, namely, as it relates to architecture and to the public generally, it will perhaps be useful to devote a little consideration to the origin and development of the various styles of architecture throughout the civilized world. And I would first ask what it is that constitutes a style of architecture? A column does not constitute a style, as there are columns in all styles. A roof does not constitute a style, as there are roofs in all styles. A window does not constitute a style, as there are windows in many. A string course does not constitute a style, as it is common to many. Mere ornamentation does not constitute a style, as all styles are more or less ornamented. And if none of these things constitute a style of architecture, what does? Here it becomes necessary to think with deliberation, as we are now entering upon the threshold of those great principles of art which are universal in all styles and in all ages. It becomes most difficult in speaking of this subject to avoid mere generalising. But I require, if possible, to go further into the consideration of this question, and to state what I believe to be the peculiar characteristics of the various styles of architecture. In the first place let us note the necessities of mankind under various climes and degrees of civilization. Let us reflect upon the vicissitudes of climate necessitating shelter. But, above all, let us consider that wonderful instinct of our nature that whispers to the soul of the savage that there is a greater and more terrible Being than himself, that disturbs sleeping consciences, and speaks to thinking men. To this wonderful instinct we owe the glorious examples of ancient and modern art. From the early Hindoo temples down to the exquisite culmination of Greek art in the Acropolis of Athens, and the luxurious profusion of ancient Rome, dates a period of upwards of 3,000 years, during which time the various phases of art had appeared and disappeared, to be again resuscitated from the ashes of ancient Byzantium by Constantine, in the fourth century, when he moved the seat of government from Rome to Constantinople.

The fears of a superstitious mind induce the savage to carve with a certain degree of rude elegance the idol which he is about to set up for worship. The mysteries of a solemn ritual lead the Buddhist to carve and to decorate, from the base to the crown, with silver, gold, and precious jewels, the temple dedicated to his gods. The dictates of a purer faith induced Christian nations to offer better and grander works to an Omniscient Creator; and thus we find that art has its origin in the expression of some abstract idea of the beautiful existing in the human mind; and when we reflect upon the variety of faiths that have, and now exist, in the world, we can easily discover the origin of the various forms into which this abstract expression was thrown by the respective nations of the earth. And, taking this view of the question, how very mean appear the efforts that have been made of late to restrict art. These would-be critics on art seem to forget that

* Read at the Architectural Association, by Mr. Arthur Allom, as previously mentioned.

it has been practised in all its various forms of beauty for thousands of years, in the same way that language has been spoken, occasionally with the force and vigour of an intuitive taste, but frequently with all the eloquence and grace of a more refined education.

The revival of any style of ancient art does not always arise from a conviction of its intrinsic beauties and merits, but is more often the result of fortuitous circumstances favouring the development and knowledge of this or that particular period. To such circumstances we may trace the revival of Palladian and Greek architecture, which prevailed in this country from the time of Wren to the present. All the publications during this period were devoted to the delineation of examples of classic art. The students of the Royal Academy were sent to study the glories of past ages in Greece and Italy; and perhaps not a little of the patronage given to the revival of Greek art in this country owed its origin to the keen appreciation of men of refined taste for the unexampled specimens of Greek sculpture that have from time time found their way into this country. During my short experience, "Gwilt's Chambers's Architecture" has been a common text-book for young architects. From its pages we have learned that a door, or a window, or a room, must be of certain proportions, to be within the strict rules of taste, with sundry other fallacies concerning the origin of the five orders of architecture which are now happily, to a great extent, exploded. In speaking thus of a most valuable work upon classic art, I would still wish it to be clearly understood that I would rather place in the hands of a pupil this book, with all its faults, than let him wander through the more picturesque but less strict works on Gothic architecture. In the one case he is, by gradual steps, advanced to a true knowledge of the proportion of the whole, as well as most minute parts, and is thus disciplined into a keen appreciation of those exquisite proportions to be found in the works of ancient architecture and sculpture; in the other he is too frequently allowed the license of the amateur in art, who always sketches, but rarely finishes.

The revival of Gothic architecture has, in like manner, derived a great impetus from the numerous and valuable publications of such men as Britton, Pugin, Collins, and others. But, unfortunately, the knowledge thus offered to the young architect has not always tended to the advancement of art, but has rather acted as a restriction. I say this because it is not long since (according to the views propounded by certain critics on architecture, who were then looked up to with considerable reverence), the use of a moulding or a window-head was restricted to those forms only for which a precedent could be found in some ancient examples, and the unfortunate tyro who had the temerity to be guilty of originality, was visited with condign punishment by these would-be Mentors of art. This is art in leading strings indeed: I would ask these persons whether they consider art in this country to be in its infancy, or in its dotage. No wonder that we, as a profession, have been content for some years past to witness the erection of a series of copies from ancient examples without a single good or original idea about them, and thus assisting, as far as lay in our power, to puzzle the New Zealander who at some remote period is to visit the ruins of this metropolis.

Having taken a brief glance at the probable origin and development of architectural art throughout the civilized world, let us consider the present state of architecture as a fine art in this country. To fully appreciate the merits and beauties of any particular style, it is desirable to consider the uses to which the building has been devoted. From what I have before stated, it will be seen that religion or feelings of a kindred nature have, according to the history of past ages, proved a fruitful incentive to the production of art in the erection of places of public worship, either Pagan or Christian. It will be found that the higher the degree of civilization the greater the efforts which have been made in the direction of high art; and although, according to the taste of the present time, these efforts may not always have been successful in keeping pace with civilization, yet it must be allowed that high mental attainments in some form are necessary to the encouragement of the fine arts. By studying the various styles of architecture which have for the most part been devoted to religious purposes, perhaps the greatest merit of each is found to consist in the perfect adaptation of all its various parts to the particular requirements of the form of worship for which it was intended.

The growth and perfection of all styles of architecture has been the result of the perfect adaptation of form and ornamentation to the requirement of the times and circumstances under which they were developed. In the architecture of the Egyptians, the Assyrians, the Greeks, the Romans, the Moors, the Venetians, and some other styles, we can discern no attempt to do more than to fulfil the necessities of each period; and it must be clearly observed that these styles were in no case the result of revivals, although we may plainly trace the influence that early periods of art had in moulding some of their forms and ornaments. This engrafting of the beauties of one style upon the vigorous shoots of another, is a healthy sign that should be encouraged, if only in opposition to the tame revivalism of either the Classic or the Gothic, which can alone lead to servile copyism, to the inconvenience of the public and the permanent depression of pure æsthetic feeling in this country.

The perfect fitness of a style of architecture to the requirements of the age under which it has been developed and perfected, should be a subject of thought and example to the young architects of the present day. For although we can mark a decided improvement in the progress of art in this country, we can also discern frequent attempts to force the details and characteristics of past styles into the façades of modern buildings without reference to their original adaptation and the requirements they were intended to fulfil. Such attempts have produced many failures in art, and, if persisted in, will result in a Victorian style that will be quite unworthy of the education and present enlightenment of this country.

To those who are anxious for a distinctive nineteenth century style, or what has been termed a Victorian era of architecture, I would say that no individual ever yet succeeded in originating a combination of beautiful and original forms of such a homogeneous character as to constitute a complete style. There is a well-known proverb that "fools rush in where angels fear to tread," and the truth of this saying is sometimes exemplified in the introduction of colour and coloured material in some of our modern domestic and public buildings. The application of colour as an auxiliary to architectural form and design requires to be executed with the delicacy of a *woman's* touch, and not with the coarseness of a *clown's*. In the one case the mind sympathizes with the graceful pencillings of art, in the other the feelings are excited to mirth, or more frequently disgust. To all who have devoted even a moderate amount of attention to the science of colour that study is found to be one of an exceedingly difficult nature. The student, after having made himself acquainted with the names and the natures of the primary, secondary, and tertiary orders of colour, has yet to attain the knowledge of those varying circumstances which should govern their successful application. In the painter's art this is to be obtained by a careful study of nature and close observation of the practice of the best masters. But we have only to note the numerous failures of those who attempt the practical application of the science of colour to discover the difficulties attendant upon its judicious treatment. All art is dependent upon a few great principles, as are in fact all sciences founded upon an accumulation of facts from which their leading truths are deduced. But in the practice of Polychromatic decoration in architecture we cannot exactly copy nature, because our art has something in its forms and principles which are opposed to those of nature. The prototype of a Greek temple has never yet been discovered in the works of nature, and I think we may safely apply the same observation to a modern school-house, and, whatever may be said by those who so frequently tell the young student to follow nature, I much fear that the teachers themselves are not prepared to point out the road which he should take.

Before bringing these few imperfect remarks to a close, it would, perhaps, be desirable, in a practical way, to attempt a solution of the difficulties connectedwith this subject. I had cause to lament the bitterness of feeling that existed between the belligerents, partly arising from enthusiasm and bigotry, the result of a peculiar bias acquired in the early education of the architect, and partly owing to the less estimable, but necessary motive of self-preservation. If the principle of eclecticism were possible to all architects, we should probably hear no more of the Battle of the Styles; but unfortunately there are many who, from circumstances over which they had but slight control, have been compelled to devote their studies to one style solely. It may have been Classic, or it may have been Gothic, and consequently they are frequently almost insensible to the beauties of any other. They must live: they have no choice: and hence their anxiety for the success of their (pet because their only), style of art. If we could only bring our minds to believe it, this mere revivalism is but a lazy and a lifeless way of practising art. The facilities offered in our time by the immense increase of architectural publications, principally devoted to the delineation of mere ornament, encourages a slavish copying, resulting in a tame, not to say fraudulent, practice of palming off the work of past centuries as the invention of the present day, I do not pretend to say that there are not signs of living art in some of the productions of modern times. We have only to walk through the metropolis to discover many examples of real thought and genius in the works that have been erected within the last few years; but we may also discover some that tell, as it were, of the paste and scissors; and many again that are so painfully erratic in their forms and ornaments that we might, with considerable justice, class them as belonging to harlequinade style of art. Turner was once asked by a tyro in the art of painting, on what principles he worked to obtain the glorious results which are now so highly prized in our public and private galleries. His answer, although disappointing to the young aspirant, was full of meaning. He said,—"I do exactly as I please;" and so it should be with us. Our minds should be so well stored with the forms and spirit of past periods of art, our judgment so well balanced by artistic study, that we should be able to handle the pencil in the same way that he did the brush; and although we may be using the same materials and means that have been used for centuries, yet by the power of imagination, guided by æsthetic feeling, we may so use them that the work shall bear the stamp of our individual minds, and remain an example, not of our powers of mimicking the works of a bygone age, but of our successful progress in architectural art during the nineteenth century. In its development at the present time there is much to be admired, and perhaps we may congratulate ourselves upon a move in the right direction, more particularly as respects our modern secular buildings. There happily exists a growing desire on the part of the public for an improved construction and a more tasteful embellishment of both private and public structures; and although the effects of eclecticism may be to give too great latitude to original thinkers, yet we have only to adopt an improved and more complete system of educating the young architect, to perhaps eventually rival the glories of both Classic and Gothic art.

LECTURES: ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

On the 29th ult. Mr. Edward I'Anson lectured on the Photographs of French Renaissance Architecture now in the Gallery, referring particularly to those of the staircase at the Château of Blois, and those of the Louvre, in support of the good opinion he entertains of much of the architecture of that period.

Mr. George Mair presided, and introduced the lecturer to the meeting.

AWARD OF PRIZES.

ARCHITECTURAL MUSEUM.

The prizes to artist-workmen have been awarded as follows:—

For designing and modelling in clay a medallion of the head of the late Duke of Wellington. First prize of 5*l.* 5s., to J. Allen, of Wellesbourne, Warwick; second prize of 3*l.* 3s. (given by Mr. S. C. Hall, F.S.A.), to J. Hatchett, of 8, Sutherland-square East, Walworth; third prize of 2*l.* 2s., not awarded, but 1*l.* 1s., adjudged to H. O. Dale, of the Terra Cotta Works, Stamford.

For carving an oak panel of original design, for one side of the binding of a Church Bible. First prize of 3*l.* 3s., to H. Reynolds, of 42, Kirby-street, Hatton-garden; second prize of 2*l.* 2s. (given by Mr. S. C. Hall), to B. L. Boulton, of 40, New Church-street, Birmingham; and 1*l.* 1s. awarded to J. Seymour, of Tower-lane, Taunton.

For an original cartoon of a canopy for painted glass. The prize of 3*l.* 3s. to J. J. Laing, of 19, West Preston-street, Edinburgh; and 1*l.* 1s. to E. Sedding, of 5, Upper Victoria-place, Clifton, Bristol.

The awards of 1*l.* 1s. were not included in the offers of the council of the Museum, but have been added, in cases showing merit, though not entitled to prizes.

It is the intention of the council, this year, if their funds will allow, to offer larger prizes, and

to present smaller sums, or books, as an encouragement to those competitors whose specimens, although not rewarded by prizes, deserve some mark of approval.

For coloured decoration. (Prizes of 5*l.* 5s. and 3*l.* 3s., offered by the Ecclesiological Society, and Mr. Beresford Hope), Mr. Simkin, of 20, Palace-road, Lambeth, and Mr. A. O. P. Harrison, of 337, Euston-road, having been considered equal in the competition, the second prize has been increased to 5*l.* 5s., and prizes of that amount have been awarded to both the above competitors.

For the prizes of 5*l.* 5s. and 3*l.* 3s. offered for a key, either Mediæval or Renaissance in style, no specimens have been sent in, being the second occasion on which the metalwork prizes have not been responded to.

The prizes, with certificates of merit in deserving cases, will be distributed at a public meeting, in the Theatre of the South Kensington Museum, on the evening of Wednesday, March 6, by the President of the Architectural Museum, Mr. Beresford Hope. Until that time the specimens will remain on view in the Museum.

THE EGYPTIAN PHOTOGRAPHS IN THE EXHIBITION OF THE ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

Mr. Bonomi, in his lecture on the 22nd ult., confined himself mainly to the admirable Egyptian photographs of Mr. Frith; and made, amongst others, the following observations:—

The first in order, as they appear on the wall, is No. 125. The capital of a column, from a remarkable structure behind the large Temple of Karnak. Columns of this order are found in no other building. Upon the shafts of two of these columns are representations of the figures of SS. Peter and Paul, now almost defaced. I mention this circumstance in the hope that some traveller will make the relics of Christian art yet to be found in the Temples of Egypt his particular study. There is scarcely a temple either in Egypt or Nubia, which has not some indication of its having been adapted to Christian worship, by filling up the incised ancient sculptures with soft clay, and covering that with a coating of plaster, on which may still be discovered the pictures of saints, and very frequently one of St. George and the Dragon.

I should have observed, that the diameter of the lower part of the shaft of this column is a little less than the upper diameter.

No. 126, is the capital of a column of one of the forms peculiar to the more ancient temples. It represents eight buds of the papyrus, bound together with flat bands. The shaft of this column is also divided below the pendant terminations of these bands into eight compartments, representing the stalks or stems of the eight buds. These stalks, after growing considerably wider as they approach the base, at last contract, as does the natural plant just before its insertion into the ground; and here the natural plant is furnished with a thin leaf, which closely surrounds the stem. This feature is also given in the stone imitation; so that, in this form or order of Egyptian column, there may be said to exist a certain consistent harmony between the capital and shaft, which we fail to recognize between the capital and shaft of a column of the Corinthian order. Perhaps the most elegant examples of this order are those of the ruin at Soleb, of which there are three views in this collection.

No. 127 is not, properly speaking, a column, but more closely resembles an obelisk deprived of its apex. It is of the rose-coloured granite of Syene, and is the obelisk at the south of the entrance of the granite sanctuary at Karnak. Two of the four sides are decorated with representations, in Egyptian relievo, of the king being received (I may say in a most cordial manner) by the divinities of the sanctuary. The remaining two sides of the square monolith are occupied by three figures of the papyrus, which represent, perhaps, a variety of the plant belonging to the southern region; while, on the obelisk to the mouth of the entrance, is sculptured the papyrus of Lower Egypt.

No. 128 is a specimen, from the west bank of the Nile at Thebes, of the form of column already described. It is from a temple in and about which there used to be a village, Errebek, in which word is recognised the ancient Egyptian name of the temple; for the temple is dedicated to Re, the sun, and the word bek signifies house, as in the word Baal-bek. This temple had anciently undergone several changes and additions, by the successors of the original founder Oimenephthah I., whose tomb Belzoni discovered in the Beban-el-Moluk, and whose sarcophagus is now in the Soane Museum.

No. 129 is likewise a column of one of the more ancient orders; the capital representing a single bud of the papyrus, and the shaft the stem or stalk. Now, in order that a characteristic feature of this important plant, namely, the triangularity of its stalk, should not be lost in these architectural modifications of its form, it is to be observed that there is always left on the shaft three ridges extending from the five flat bands down to those close-fitting leaves at the base of the shaft.

No. 130. The column I have next to describe is of an order never found in any of the more ancient temples now existing. It may be said to be of the composite order; for the capital is composed of papyrus flowers in several stages of growth, placed in orderly succession round a common centre.

First, we have four of the fully expanded flowers; then four larger half-expanded; then eight lesser half-expanded; and lastly, sixteen buds. The stalk of each flower and bud is to be traced for a short way down; that is to say, as far as the first flat band, of which there are always five. From this point the shaft represents only a single stalk, gradually enlarging, till, within about one-sixth of its height, it begins to contract, and is encompassed by those close-fitting leaves previously described.

In the temples of the later Ptolemies and of the Roman period the shaft is frequently continued in a straight line down to the base. The leaves at the base are, however, never omitted.

The columns of an Egyptian portico are always connected by a dwarf wall, and those that sustain the entrance are further strengthened by a massive construction which sustained the two vanes of the gate. In the case of Dendera, the stones into which the pivots of the gates were inserted are of black granite; the rest of the temple being of sandstone, as indeed are all the columns hitherto described.

No. 137 exhibits the details of some of the shorter columns of the great chamber called the Hall of Columns, at Karnak. The roof of this chamber was supported by not less than 122 columns of the bud-shaped capital, and twelve of the fully-expanded flower, making in all 134 columns.

No. 138 is a view taken across the Hall of Columns at Karnak. Here the intercolumniation is considerably increased; making a transverse avenue across the Hall, from north to south, corresponding with the north and south gates. The great avenue or axis of all the buildings connected with this Hall is at right angles with this view; and the columns which support the higher roof in that axis represent a single, fully-expanded papyrus. These columns are about 60 feet high, while those which support the lower roof are not 40 feet high.

No. 140 is a view of one of the most interesting ruins in the Plain of Thebes. It is surrounded by a series of crude brick arches, like our railway tunnels. For what purpose these extensive arched constructions were made still remains a mystery; but it is tolerably certain they are of the same age as the Temple, which is of the time of Rameses II.

No. 141. View of the Plain of Thebes looking across the Nile. The towers of the great propylon of Karnak are visible in the distance.

No. 142. This newly-excavated figure is the last one of the row close to the second propylon. In my time it was buried up to its shoulders in the unburnt bricks and fragments of stone which encumber the ruins of Medinet Habu. It represents the great Egyptian conqueror Rameses II., the Sesostris of the Greeks, and two of his children. This is a particularly interesting view, as showing the beautifully-formed and deeply-cut hieroglyphics with which the walls of this Temple are covered where they are not occupied by representations of battles and processions of the greatest historical interest. I would next call your attention to No. 139, representing the recent excavations in the inner part of this temple, carried on by M. Mariette. It shows the bases of walls and columns of a chamber resembling the Hall of Columns at Karnak. In my time the whole of this space was covered with the accumulation of the ruins of successive villages, built one over the other, above the remains of this palace or temple of one of the greatest conquerors in the world. There is reason to believe that the ruined and deserted villages which have been so recently removed have not been inhabited since Thebes was a Christian city, when the great court of the temple to which the gate gives access was converted into a cathedral church. There are some beautiful drawings by David Roberts, showing this court, and the Christian additions to it, by which means it was adapted to Christian worship. A singular fact in this view is that we see no remains of the superstructure; and we naturally inquire, 'Where are the architrave and roof stones? When, and by whom taken away?' These are questions connected with the history of the great capital of Upper Egypt which it would be highly desirable to answer, and which I hope the learned excavator will have found sufficient evidence to elucidate satisfactorily.

It will be understood, from what has been said, that all the varieties of capitals and columns, excepting three, are derived from the papyrus; and, when we reflect on the importance of this plant in ancient times, as furnishing the material for the transmission of thought, we shall cease to wonder why its figure was so often pourtrayed, or why it should have been chosen as the type of the column,—a feature in all trabeated buildings, and especially in those of Egypt.

MANCHESTER ARCHITECTURAL ASSOCIATION.

A meeting of the Association was held at the Church Institute's rooms, John Dalton-street, on the evening of Wednesday last, January 23rd. Preliminary business having been transacted, the proceedings of the Association were formally opened by the president reading the inaugural address, in the course of which a sketch was given of the favourable circumstances under which architecture at present exists, in spite of the many misconceptions with which the general public regard it.

In inquiring into the probable cause of such misconceptions, the writer asked the question,—"Is the history of architecture inadequate to furnish material for suggestion, instruction, and incentive; that, profiting by the experience of the erections of past times, we may avoid the defects, imbibe the spirit which breathed into their architecture the breath of art-life, or catch from them the mantle which shall enable us to infuse into our works power and beauty, or seize that golden cord which, in not a few instances in the progress of style, has been left incomplete; and carry to a successful issue the perfection of styles in so far as perfection is attainable?"

"Or is it that the architectural mind, intent on reaping the rich fields already tinged with autumn hues, and gathering the luscious fruits, abundant and luxuriant, flits amid the bewildering scenes of beauty, experimenting with one thing, capriciously adopting another, seizing with excited grasp the apparently excellent and worthy; carried away by the vastness and richness of his resourses, in despite of the judgment that cooler research would secure to it?"

The essayist, in alluding to the many failures, artistically and constructionally, of buildings of modern times, ascribed such defections in great measure to improper early training in regard to matters of professional education; and censured in the following terms the architect who, in despite of all accepted standards of taste, thrusts the crude creations of his brain on the public:—"Does it, then," he asks, "become our province to censure?—have we any right to indulge in strictures and charge with a weighty responsibility those who incur them; seeing that after all it may be a mere personal matter; affecting, in his professional reputation, the individual more immediately interested? If he be willing to bear the censure of the public, to whose criticism the work is, by the fact of its erection, submitted—if he choose to stand on his rights, as a private citizen, on the peculiarity of his standard of taste, or on his privileges as a professional man better informed than the uninitiated portion of society, can requirement go further? We believe it can: convinced that, as in literature, so in art, the works of the refined and skilful have their tendency in elevating intellectually those who come under their influence; that, on the other hand, coarse, tasteless, and ill-adapted productions have not merely a negative impression; exciting no emotions of pleasure, no sense of contentment with the work thus presented, but one positively demoralizing; giving to architecture a depressed standard of taste, weakening the sympathies, stultifying the imagination, and extinguishing the life-spark of the appreciation of the beautiful possessed and enjoyed in a greater or less degree by all." The line of argument chosen embraced the necessity of careful art-education, and also proved that an association like that just established was one of the most effective means to secure such training.

The hon. secretary, Mr. R. K. Freeman, having intimated the business of the next three meetings, namely,—A paper by Mr. Thomas, on "Timber;" a paper by Mr. Alfred Darbyshire, on "Michel-angelo, the architect, sculptor, painter, and poet;" and one by Mr. Webster, on "The Science of Architecture," the meeting was concluded by a vote of thanks to the president for his paper.

THE "AMATEUR MUSICAL SOCIETY."

We record with regret the dissolution of this excellent Society. The cause of this sudden termination of its career, at a time when it was, to all appearances, as flourishing as ever, was a temporary and trifling embarrassment, induced, ostensibly, by the diminution of its subscribers, but, in reality, by the listless apathy of the orchestral members themselves, who, with a few exceptions, were content to enjoy supinely the benefits of the institution without moving a finger to aid in increasing its funds beyond the amount of their own subscriptions, by seeking subscribers amongst their friends individually. The immediate embarrassment was paltry, and numerous well-wishers to the Society would willingly have supplied the means for its liquidation. But the prospect for the ensuing season was not encouraging, and so, at a general meeting of the members, held on the 15th ultimo, the Society was dissolved.

This precipitate step will create a blank in the musical circles of the metropolis not easily filled up, and all who have watched the doings of the Society for the last fourteen years will bear testimony to its merits, and perceive how far easier it is to destroy than to form a society of such pretensions. For the performers themselves a greater loss is involved, and the means once placed at their command for a practical acquaintance with the highest class of orchestral writings in their integrity must now be supplied by any chance opportunity that may present itself. Whatever other causes, independently of the apathy of the members, may have conduced to the breaking up of the Society, suffice it to say that we consider the resolution was premature, and that the effect is likely to be mischievous. The Society, it has been said, has in some respects fulfilled its mission, in leading to the formation of private societies, and to increased appreciation of their professional brethren by the amateurs of the metropolis. We do not think so, and believe that its dissolution must exercise, to some extent, a retrograde effect upon our amateurs.

Of the origin of the society, in 1846, through the joint labours of Lord Gerald Fitzgerald, Sir A. K. Macdonald, bart., Mr. E. Jekyll, and Mr. H. Leslie, we have before spoken, and a few lines may suffice to record its rapid growth to maturity from its first conception in the *salons* of the Duke of Leinster.

The two first years already included in the orchestra the principal amateurs, both noblemen and gentlemen, of the metropolis; and the support

of his Royal Highness the Prince Consort and the late Duke of Cambridge set the example for the subscription-list. The meetings for the first year were held in Store-street, Bedford-square,—Mr. Balfe officiating as conductor,—and consisted entirely of rehearsals, terminated by a concert to private friends; but in the second year the society moved its *séances* to Hanover-square—where they have ever since been held—alternated concerts with rehearsals, and opened a public subscription-list. After Mr. Balfe's withdrawal Mr. O. Lucas, Mr. Negri, and Mr. G. A. Osborne, successively wielded the *bâton*, and in 1855 Mr. Henry Leslie was requested to undertake the arduous duties of conductor, which post he retained to the last, with what efficiency we have often testified to.

The *prestige* of fourteen seasons was surely worthy another effort to retain. If called on for a verdict on the dissolution of the body, we should certainly say, *felo de se*. There must be an Amateur Society in London, and the sooner a committee be formed to re-establish it the better.

THE SANITARY CONDITION OF SUNDERLAND.

FROM some statistical details given in the *Gateshead Observer*, it appears that the total mortality in the borough of Sunderland is being gradually reduced. Within the last three years there has been a reduction of 10 per cent., — that is, ten persons out of every hundred have been annually saved. The total annual mortality had been so high as 26 per 100, but it is now reduced to 22. This however, be it noted, is still a far way off an exemplary limitation of mortality. But what shall we say of the amount of infant mortality in this same borough when regarded *per se?* Were it not for this black spot in its mortality bills, Sunderland might, perhaps, be almost an exemplary borough in respect to health. The destruction of infant life here is scarcely credible. Out of every 1,000 infants born, how many do our readers think die (still infants), within the limits of this borough of Sunderland, the whole average of deaths, be it remembered, being 22 per 100? Say 30, and add a cypher for the thousands, and, with 300, you will still be far below the mark! Yes, 500! Out of every 1,000 infants born in Sunderland, 500 die before they grow up out of infancy! Could this wholesale annual massacre of innocents only be made palpable to the eyesight, as a bloody business carried out by means of swords and spears, like the infernal work accomplished 1,800 years since by the soldiers of Herod, how the world would reverberate with the utterances of horror to which it would give rise! Yet what is the difference? The process is much the same, only more quietly and secretly carried on: that is the only chief difference: death is not less cruelly and wantonly at work in the modern instance than in the ancient. At Newcastle, the infant mortality is not much less (440 per 1,000), while in Halifax, Bradford, Derby, and Birkenhead, it falls to 176 per 1,000.

AMUSEMENTS FOR THE WORKING CLASSES.

LOCAL BANDS OF MUSIC.

THE competition of local musical bands which took place at the Crystal Palace in course of last year showed how very considerable an amount of progress has already been made in the formation of such bands, and in the quality of the music with which they are capable of entertaining their fellow-workmen and others. It was a very interesting feature, indeed, of that competition, to find a few workmen, belonging to some obscure factory, in a provincial town, vieing with the best and most skilled musicians among the local bands, and even carrying off prizes awarded by competent judges. The annual recurrence of such competitions would greatly promote the extension of this branch of entertainment for the leisure hours of the working classes. Local concerts, too, amongst the bands, must do much good in promotion of the movement. A bill and programme of one of these is now before us. This one, however, has the peculiar advantage of being got up by Mr. F. Leslie, brother of the well-known composer, Mr. Henry Leslie; but his connection with it is an entirely legitimate and natural one, from his position as regards the management of the works to which the band belongs,—namely, the Bristol Gas Works. Mr. F. Leslie is the honorary bandmaster of the band, at the Avon-street works of this company; and the concert, which takes place on the 11th inst., is being got up in aid of the band fund, and under the patronage of the mayor of Bristol and the directors of the gas company. The programme comprises pieces of music by Mozart, Verdi, Rossini, Mendelssohn, Leslie, Wallace, Weber, and various other composers; and mutual aid and good-fellowship are displayed in the gratuitous co-operation of the Clifton Vocal Association; and other artistes, female as well as male, have kindly promised their assistance. The gas-work men alone have purchased 600 tickets, saloon (2s.) and gallery (1s.). To show how such bands are established, we may here add that, under the guidance of Mr. Leslie, twenty-four of the workmen united and subscribed no less than 110*l.* for a set of Distin's instruments. The band meets twice a week for instruction after working hours; and, since April last, when it was established, great progress it appears has been made, and the players have become very proficient for so short an apprenticeship. Mr. Leslie is anxious to show, in this way, "what can be done, with a little method and thought, to improve the condition of the workman, by diverting his thoughts, during his leisure hours, from low ideas and associations." The example is about to be followed at the Canon's-marsh Station of the same company.

SCOTLAND.

Edinburgh.—Professor Syme, of Edinburgh, writes to the *Times*, giving a very bad account of the accommodation provided for the troops in Edinburgh Castle. The married men, he states, are stowed away on the ground-floor, in low, narrow, ill-ventilated rooms, of which the area is equal to 20 feet square: the walls are only 6 feet high, with the ceilings slightly arched towards the centre, and the solitary window, about half the size of an ordinary one, is placed at the end, opening into a corridor. Each of three visited contained three married couples, with from six to ten children, of ages between three months and twelve years. Of the single men, a large portion are packed into storehouses, with crazy skylights and stone floors, in numbers so disproportionate to the space, that when the beds, which stand close together, are let down at night, they overlap each other at the feet, and thus convert the whole surface into a uniform plane, whence, the lights being extinguished at nine o'clock, none of the twenty soldiers who form its complement can escape for any purpose whatever, except by stumbling over the bodies of their sleeping comrades.——A piece of screen-work has been erected round the spot where the old City Cross stood, for the purpose of showing the extent of space it would occupy in the event of re-erection. It would seem, according to the local *Post*, to affect, in some measure, the proper width of this central thoroughfare; but if the basement were somewhat contracted and made to rise in a gradual form, this objection, it is thought, would be obviated; and otherwise the restoration of this ancient relic would be rendered a characteristic ornament to the principal street of the Old Town. At a public meeting of the citizens, we observe, it has been resolved to urge the re-erection of the cross.

Glasgow.—The granite fountain, gifted to the city some months ago by Mr. James Crum, of Busby, has just been erected on the edge of the pavement on the west side of George-square. The design is simple. The material of the fountain is Peterhead granite, polished; and there is a dog-trough below of another description of granite. The fountain is the work of Messrs. M'Donald & Leslie, of Aberdeen.——The Roman Catholic church of St. John, in Portland-street, Gorbals, has been enlarged by adding the adjoining schools to it, and new schools have been erected. The cost of enlarging the church, according to the local *Free Press*, was about 500*l.* The front of the new schools is in Warwick-street. The building is in the Italian style of architecture; and, in most of its features, according to the paper just named, corresponds with the design of Vignole's invention executed by him in the cortile of the castle of Caprola, built by Cardinal Alleprando Farnese, on the Viterbo road, about thirty miles from Rome. The building itself is 100 feet long and 48 feet broad; while, to the rear, and running along the public lane, there is an area 100 feet long by 17 feet wide, which is divided into two yards, for the male and female pupils, and in each of which are built suitable water-closets, ash-pits, coal-cellars, fountains or lavatories, with a space convenient for a play-ground. The boys' school-room is 76 feet long, 22½ feet wide, and 15 feet high. It has nine windows and two fireplaces. The upper hall, or girls' school-room, is 78 feet long by 42 feet broad, and has sixteen windows and four fireplaces. There are other class-rooms in the building. There is also a round tower, terminating in a cone and spire, and containing apartments. The cost of the school-building is said to have been about 5,000*l.*

Jedburgh.—The Commissioners of Supply of Roxburgshire have resolved to erect a new court-house here; and a committee appointed to carry this resolution into effect have requested Mr. David Rhind, architect, Edinburgh, to prepare the requisite plans and specifications. The proposed building will be erected upon the site of the infant school in Castle-street, adjoining the existing County-hall; and the latter will be altered internally, and converted into police-offices, and chambers for the procurator-fiscal and other public officers.

DOINGS IN IRELAND.

Londonderry New Bridge.—At about 10 a.m. on the 7th inst., the third cylinder pier gave way, and two of the cylinders are lying on their sides, level with the water. The cause has not been made public.

Belfast.—The most striking event is the increase in the number of Presbyterian places of worship. The Sandy-row Presbyterian church has just been completed, and was to be opened on Sunday, 13th instant, by the Rev. Dr. Hanna, of Edinburgh. Mr. McNea, architect; Mr. Fullarton, builder. It is unpretending in style, and ornamented solely with white bricks and a little cement on the street front, and will accommodate about 800 persons. The Queen's Elms Presbyterian church is of a more pretentious character, and might be, perhaps, called Norman, having an arcade in front, supported by thin columns of polished granite, with capitals, each differing from the other, a square tower on the southern angle, and the principal façade and tower built of cut stone. The roofing is nearly completed. We believe the design was furnished by Mr. Corry, one of the chief promoters of the building.

The Presbyterian church at Sydenham is in progress of erection. Mr. Barre, architect; Mr. Armstrong, builder. We hear it is to have a spire, and will probably be in the Gothic style.

A Presbyterian church is also to be erected at Duncairn, on Mr. Macrory's grounds, for the accommodation of the inhabitants of the north-west quarter of the town.

The Ulster Club advertise for tenders for a club-house. Messrs. Lanyon, Lynn, & Lanyon, are the architects. A double villa is to be erected on the Falls-road; Mr. W. T. Matier, architect, Belfast.

A new Coast-guard Station is about to be erected at Baldoyle, near Howth, under the Board of Works. Mr. J. H. Owen is the architect.

STAINED GLASS.

Hanley Castle Church.—Messrs. Clayton & Bell have completed a window for the church of Hanley Castle, Worcestershire, recently restored by Mr. Street. The subject of the glass is the "Last Judgment," the treatment comprising a great number of figures in groups, and otherwise occupying the entire area of the window; all canopy and ornamental divisional features being omitted. In the upper portion of the centre light is introduced a figure of Christ, enthroned in regal and jewelled vestments, as judge, surrounded by choirs of angels. The next range of groups beneath represents the Apostles, six arranged on each side, with St. Michael and trumpeting angels in the centre, St. Michael bearing the balance of good and evil, and the sword of punishment. At the base of the window, in the centre, are introduced various groups of figures rising from their graves, illustrative of the resurrection of the dead. On each side are other subjects, illustrative in the one case of the Fields of Paradise, with the Blessed escorted by angels; and in the other of the Fate of the Condemned. At the extreme base of the window runs the following inscription:—"To the glory of God, and in memory of Sir Anthony Lechmere, Bart., and Mary his wife, this window is erected by their daughters, Sarah and Eliza. Christmas, 1860." The window is a rich and creditable piece of work: we should admire it still more if the same scale had been preserved in all the figures, excepting that of our Lord, perhaps. Moreover, some white glass would have aided the effect.

Church of Upper Sapey. — A painted east window has just been erected in this church. It is the gift of Mrs. Newman, being a memorial. The designer was Mr. Preedy, of London. The prin-

cipal subject represented is the Resurrection: our Lord rising from the tomb and clothed in white, occupies the centre; below are two of the Roman soldiers. In the north light are St. Peter and St. John; in the south, the three Marys. In the quatrefoil at the top of the window is the fish casting out Jonah. In the lower part of the window are three circular medallions: in the centre one is St. Michael (to whom the church is dedicated), slaying the dragon: in the side ones are angels holding scrolls.

Wellington Parish Church.—The apse of the parish church of All Saints, in this town, has been enriched with a memorial stained-glass window, at the expense of James Oliver, esq, of Springhill. The window consists of three lights, the two outer ones being narrow compared with the centre one, which is of an unusual width. The architecture of the church, which is of the worst period of the Georgian era, rendered the treatment of this window a matter of considerable difficulty. Messrs. O'Connor, of London, were the artists. The panel of the centre light depicts the Crucifixion. The Virgin, St. Mary Magdalene, and St. John the Divine, are the figures composing the group at the foot of the Cross; while in the upper part, angels, in acts of adoration, fill in the panel. The side lights are charged with the figures of Saints James, Thomas, Peter, and Paul.

NEW SUBSTITUTE FOR MARBLE IN WALL-LININGS AND ELSEWHERE.

Reference was made in our last report of proceedings at the Institute to Mr. Bridell's patent marble. This material is applied not only to the same purposes as scagliola, but in chimneypieces and chiffoniers; and bears heat, cold, and exposure, it is asserted, without injury. For wall-linings, it is about half the price of scagliola. It may be applied as large or small panels of one colour, decorated with styles of a darker tint. It is made in slabs, to be fixed afterwards on the walls, so that each slab has a veining and character of its own. It is made chiefly of Keene's cement, and there is no plaster used in it; but the manner in which it is worked is the invention of Mr. Ellison, the patentee.

The panels of self-coloured materials for walls is a fresh notion. The proprietor asserts that this can be executed successfully, and that the ultimate cost would be even less than that of graining. We may mention that the dado and other decorations of the dining-room in the new wing of the Tavistock Hotel, Covent-garden, are of the patent marble, and are now being fixed on the walls, under the direction of the architect.

PRESERVATION OF STONE.

Sir,—The preservation of our buildings from premature decay is a matter universally admitted to be of the greatest importance, and our highest authorities concur with yourself in the opinion that time should be the most highly esteemed test. This test is now to a certain extent available; and if, anterior to the next discussion at the Institute of Architects, those gentlemen who feel an interest in this important question would personally inspect the buildings already operated upon, they would be the better prepared to receive assertions or explanations respecting them, and be enabled to form a correct conclusion as to how far any of them—if any—fulfil the necessary conditions of success. An Engineer.

Mr. Page, in 1857, operated on the 7th, 8th, and 9th buttress, plinths, and dies, with intervening bays, to the same extent of the river front of the Houses of Parliament (counting from the south end).

Mr. Daines, in 1854, operated on the bay facing Old Palace-yard and adjoining the Victoria-tower and the battlements of the quadrangle of the Commons inner court; in 1856, on a portion of the parapet on the river front; in 1857, on a portion of the large cornice of the Conservative Club, St. James's-street.

Mr. Ransome, in 1857, operated on the plinths and dies of buttresses on either side of the Commons' entrance on river terrace of the Houses of Parliament; in 1858, on the plinths and dies on either side of Peers' entrance on river terrace of Houses of Parliament; in 1859, on Bloomsbury Chapel; in 1860, on the Marquis of Westminster's residence, Grosvenor-street; and on the Institution of Civil Engineers, Great George-street, Westminster.

Mr. Szerelmey, in 1858, operated on the south side of the Star Chamber-court of the Houses of Parliament; and in 1859 on the Speaker's-court, ditto; in 1860, on Salter's Hall, City; on the statue of Victoria I. at the Royal Exchange; and on part of Spurgeon's Tabernacle, in the Borough.

Sir,—In the excellent and practical exposition of Mr. Tite, M.P., in the discussion at the Royal Institute of British Architects, he alluded to a defect in silicate of lime, as a coating to stone for its preservation, viz., the pulverulent character of the precipitate formed by the mutual decomposition of the silicate by chloride of calcium, and you may, perhaps, deem the result of practical experience in the matter worthy a place in your columns.

If the precipitate formed by the above combination be washed until the whole of the uncombined silicate is separated, an impalpable powder remains, so fine as to need neither the muller nor the palette knife to crush it. This powder has been tried for water-colour painting in the usual mediums—so beautifully fine is it, though without success, owing to its semi-transparency while wet deceiving the eye of the artist. Its extreme attenuation is, however, worth notice, and is placed beyond a doubt by the facts mentioned. T. Wright.

WORK FOR LADIES.

Sir,—In a recent number of your journal a correspondent, "E. P.," asks for some practical objects to be set before ladies who are desirous of useful employment. May I be allowed to mention that one opening recently made for occupying the leisure hours of those who desire something better and more satisfying than "morning visits," is that of visiting workhouses.

The "Workhouse Visiting Society" has gained admission into many unions, both in London and the country; and more visitors are still desired in some of them, both on Sundays and week-days. The occupation suits some ladies better than that of visiting the poor in their own homes, especially in London; and those who have once entered upon it become much interested in their labours.

I may perhaps be allowed to add, that the office of the Society is at No. 3, Waterloo-place, S.W., and that I shall be very glad to receive any communications upon the subject addressed to me, either there, or at No. 13, Bedford-place, W.C.

L.

THE PREVENTION OF DAMP IN STONE FLOORS.

However ornamental or useful stone may be when used for staircases, or as a flooring for lower rooms, there is nevertheless but little doubt that its employment has *destroyed* many lives, and in other cases induced a *helpless* state of bodily disease. This may arise from various causes; to adults, from kneeling upon it to clean it, or by sitting with the feet upon it, as is often the case in kitchens when paved with it. Even if a piece of carpet or mat be placed on it for protection, the danger is not overcome, for the cold will strike through these. It is suggested that one or more coats of oil brushed over it would, by preventing the absorption of moisture or water, remove the danger. *Animal* oils would, perhaps, be the best to use, though vegetable oils have the advantage of being thinner and cleaner to use: besides, perhaps, they would be more readily absorbed. As far as practicable, the stone should be rendered as dry as possible by removal of earth from below, proximity to a fire, or selecting a time after the continuance for some days of warm or dry weather, before washing or brushing the oil into it. Probably no other of the chief materials used in building imbibe moisture so readily, or part with it so slowly, as stone; and it is believed that, by adopting the process suggested, not only might much ill-health be prevented, but a saving perhaps effected with respect to repairs.

M.

LIVERPOOL CEMETERY COMPETITION.

Sir,—It is now upwards of two months since I sent in plans for the Liverpool Cemetery; and, as I have not received any information, I have discussed in my own mind the propriety of applying to the secretary of the Board; but it occurs to me that an inquiry through the *Builder* would answer the purpose much better, as it might induce something from the Board, and be at the same time an acceptable medium to other competitors. I have seen your review of a number of the plans exhibited, given in the *Builder* of some weeks past; but I have sought in vain for any other allusion to the plans. I hope shortly to be enlightened as to the result. While on this subject, allow me to remark on the very unsatisfactory turn which competitions seem to be taking. There appear to be less of the excitement, and a great deal more of the unfairness which occasionally characterize horse-racing.

It is lamentable to see talent thus riding itself to death. With some, competitions may be a recreation, or a filling up of time for themselves and their pupils, and also serve a good purpose in the practical knowledge, which the requisite study of each particular subject must necessarily impart: with others it is the prospective source of a livelihood; but none can rest content with the worse than lottery system which prevails with regard to the adjudication of merit. There must be many who plod the pencil with weary hands and cheerless hearts; and to them, small inadequate premiums, long delays, and unjust decisions, must be a subject of many regrets.

The advertisements for plans which are constantly to be found in the *Builder* are (with few exceptions) an index of the low appreciation of the outside world for art; and the greedy manner in which the bait is swallowed by a score or more architects shows something wrong in the profession, and makes one almost fear that the offer of a tin medal would induce a certain amount of competition. 25*l.* would seem to be the liberal outpourings of some corporate and other bodies to tempt talent to expend itself in their behalf; and then they must needs insert a clause, that this paltry premium is to be merged in the commission if the successful competitor is employed to carry out the work. Allow me to conclude this subject for the present by a request that in future those who make the *Builder* the medium of advertising for plans will make use of it to inform competitors (as briefly as they think well) as to the conclusion arrived at. I really think some such information, and a polite acknowledgment, should accompany returned plans. It does appear very ungracious, after putting architects to great labour and expense, to keep them ignorant of what reception their plans have met with. A Competitor.

CAMBERWELL BANK COMPETITION.

Sir,—Can one of your correspondents give me any information about the Camberwell Bank competition? The committee advertised for designs at the beginning of December, and promised to return the unsuccessful competitors' drawings after the 17th of December. They have not done so; nor have they selected any design, as far as I am able to judge. Veritas.

THE COINAGE RETOUCHED.

In your article on the "Coinage, New and Old" (p. 27, January 12), you draw attention to the beauty, both in design and execution, of the coins of Charles II.'s reign; and it may be interesting, as also an incentive to emulation, to remind your readers that the excellence was attained by a French artist, and not by our own countrymen. Lord Macaulay, in his interesting chapter on the state of England in 1685, draws attention to the fact that "even the designs for the coins were made by French artists." It is also singular that the coins that were made by the *first* coining mill or press should be so remarkable for their excellence, as it was about this period, namely, 1624, that Briot, a French artist, had his coining-press first erected at the Royal Mint in England, the proposed introduction of which in France had been the cause of his expatriation. It is some consolation to know that, for once, our Government was the first to take advantage of a new mechanical invention. A. T. C. E.

Books Received.

VARIORUM.

Another of Mr. William Longman's excellent "Lectures on the History of England," given to the Chorleywood Association of Working People, in whom he takes an interest, has just been published. This is the third of a series, and it comprises the reign of Henry III. (A.D. 1216 to A.D. 1272). The lecture is given in the same clear and appropriate style as the previous ones, and is illustrated by *fac similes* of some curious ancient engravings, and by other sketches, together with a coloured map of the ancient English possessions in France.——"The Economy of Cookery, for the Middle Class, the Tradesman, and the Artisan; containing the most easy, practical, and economical preparations ever yet introduced, to complete the domestic education of the English housewife and the cook. By Volant & Warren, many years assistants to the late Alexis Soyer, and compilers of his Memoirs" (Diprose & Bateman, Portugal-street, Lincoln's-inn-fields), is, we dare say, a very good little book of the kind; but we much fear the title is a misleader: at least the artisan, and even the tradesman, would, we fear, be much more likely to be led into extravagant habits through its many tempting dishes, than into habits of economy and moderation in their style of cookery by its means. It would seem to be an incompatible task to endeavour to bind up the artisan in a cookery-book along with those who have, in general, better means than he has to give heed to the great, and often, for him, the far too costly, variety of recipes of which such books (and this one not excepted) are mainly made up. What artisan is he who is likely, for example, in boiling a fowl, to have really sufficient means, fairly consistent with "economy,"—on which Messrs. Volant & Warren so emphatically dwell,—to enable his wife to "soak it in milk one hour?" Why, in London, it would cost many a poor fellow at least one-half of his day's wages, as an artisan, to effect this one process of "economy."

Miscellanea.

Fire from water.—Last week some lime in a bag was left on the floor of a shop in Brook-street, Manchester. The frost had burst some of the water-pipes on the premises; but the thaw had not reached them, so as to show their defects. This happened, however, during the night; and a portion of the escaped water got into the bag of lime, which rested against a partition. The result was, that about half-past one o'clock the shop was discovered by a policeman to be on fire; and, although the officers worked energetically, the flames were not extinguished until damage to the amount of 20*l.* had been done.

THROWING A CHIMNEY OVER.—A few days ago a chimney, belonging to the Midland Company's coke ovens at Gloucester, was thrown down purposely. The operation was performed in about twenty-five minutes; and the chimney, the weight of which, it is calculated, was nearly 300 tons, fell in one mass, not a single brick being displaced, and within a foot of the intended place.

THE TURKISH BATH.—Mr. Urquhart has recently delivered a lecture on the Turkish Bath, at Newcastle-on-Tyne. The object in view was to correct misapprehension and prevent perversions in reference to the introduction of this bath amongst us. Some people are running mad on the subject and may find out their mistake too late.

GRIMSBY TOWN-HALL COMPETITION.—With reference to a correspondent's remark last week on the date at which the design sent by Messrs. Bellamy, Hardy, & Giles, arrived, these gentlemen state, that it was simply the "tower perspective which, being packed separately, was lost by the railway people, and did not turn up until the 10th ult. Even it was delivered *before* the town surveyor unpacked the designs," Their other drawings were delivered within the time fixed.

ST. PAUL'S CATHEDRAL.—The performance of Handel's "Messiah," which took place in this cathedral on the 25th ult., under the dome, in aid of the cathedral fund, and especially for the purchase and erection of the new organ, was very successful in a musical point of view, and will, we hope, add considerably to the funds. Madame Lemmens Sherrington and Mr. Sims Reeves were the principal vocalists. Some of the choruses were magnificently given. The arrangements, which were chiefly made by Mr. Penrose, the architect of the dean and chapter, proved to be very efficient. We shall take an early opportunity to speak of the alterations that have been made in the cathedral and the works that are going on.

MRS. HALL'S MAGAZINE.—Some of our readers will have heard that Mrs. S. C. Hall, the esteemed authoress of "Marian," "Midsummer Eve," "Tales of Irish Life," and scores of other charming books, has undertaken to conduct a Monthly Magazine, of the size of *The Cornhill*, addressed more particularly to her own sex; and that the first number will be published for the beginning of March. As to its title,—*The Household Magazine* was first talked of, but has lost favour. The *St. James's Magazine* is now suggested, and is not a bad name. A right Royal lady rules at St. James's: ladies aspire to be seen there, and the name would not repel male buyers, who must of course be also looked for. Let the name be what it may, all who know what Mrs. Hall has done will know that a better conductor for such a work,—a work just now much wanted,—could not be found. Essentially feminine; not claiming to be amongst the "strong minded;" but yet having clear convictions of woman's rights, duties, and power, with ripened judgment and cultivated taste; Mrs. Hall, we may rest assured, will produce a miscellany that will be warmly welcomed into every home in the kingdom.

THE LATE MR. WILLIAM WILSON, C.E.—On the 24th ult., the remains of Mr. Wm. Wilson, late of Haggerstone, and formerly of Stratford, Essex, were deposited in the city cemetery at Ilford. His career affords another example of what self-culture, coupled with perseverance and industry, may accomplish. Deceased was born in the year 1768; and, his scholastic education being of a very limited kind, he set about to remove this difficulty by means of self-culture; and, ere he had scarcely reached the age of manhood, he was familiar with many branches of science and the arts, and which it would appear in after years he was destined to become more thoroughly and practically versed in. He became a member of the London Mathematical Society (established in 1719), and was elected president, discharging the duties of that office for more than forty years. The public were admitted to these lectures by tickets, and in one season he delivered a series extending over twenty-six consecutive weeks. For a long series of years he was analytical chemist at Guy's Hospital; and, during his engineering pursuits, he was the projector of the canal tunnel at Islington, the East London Water Works at Old Ford, and several other important undertakings. For twenty years he was chief engineer of the Gas Works at Haggerstone; and it may be mentioned, to the credit of the directors of that company, that, on his retirement from the active pursuits of life, they settled on him a handsome annuity, which he enjoyed up to the period of his demise, which took place on the 17th of January, at his residence at Haggerstone, having attained the advanced age of 93 years.

A NEW TRADE FOR COVENTRY.—We are informed a correspondence has been carried on between the Vicar of St. Michael's, Coventry, and a leading proprietor of extensive iron works, the result of which is the immediate formation of a company, to be called "The Art Manufactures' Company."

SANITARY STATE OF DEVONPORT.—The condition of some parts of Devonport was brought before the local commissioners, at a recent meeting, by Mr. Swain, junior, who complained of the neglect of sanitary measures, and reminded the commissioners that summer might produce fearful consequences unless something were now done. Even as it was, he said, pestilence had been raging to rather an alarming extent in Devonport for some time: they had had small-pox in the town for more than eighteen months, and it seemed to be increasing rather than diminishing. Fevers were also prevalent. And no wonder, if the following be an indication of the state of matters in the poorer districts of this town. In directing attention to the imperfect sanitary state of the houses in Webster's Ope, Cornwall-street, Mr. Swain stated that several houses there had but one convenience, though each contained about fifty inhabitants. There was a large gutter in the passage of one of the houses in which the people emptied their nuisance, and by this means it was conveyed to the cesspool alluded to.

LECTURE ON THE CHEMISTRY OF WATER, AT WARRINGTON.—Dr. F. Crace Calvert has given a lecture on this subject to the Mechanics' Institution, Warrington, in the Music-hall there, to a very fair attendance. In course of the lecture Dr. Calvert reviewed the question of the mutual action of lead and water, which has recently been re-exciting the public attention. Many people, he said, had acquired the very bad habit of using rain-water as a beverage. He said it was a bad habit, because that kind of water, especially in large manufacturing districts, got thoroughly polluted with sulphurous acids, and these acids acted most violently on leaden cisterns, making the water unfit for drinking purposes; and the worst of lead poisoning was that it undermined a person's health before he became really aware what was the matter with him. The numbers of cases that he had known of this was positively frightful; and great care should be taken never to drink soft water, rain water, or, in fact, any kind of water preserved or collected in leaden tanks. To discover whether water contained lead in a state of solution, there were several most valuable tests. [The lecturer here showed the effects of bichromate of potash and sulphuretted hydrogen on a solution of lead.] Zinc, he said, was almost, perhaps quite, as dangerous as lead; and its presence in water could be discovered by liquor ammonia. Water also contained copper, though very rarely.

BREAKAGE OF WATER-PIPES THROUGH FROST. This is a subject we have again and again, not only recently, but year after year, pointed attention to; but our present object is merely to correct an error into which a correspondent of the *Times*, calling himself "a Civil Engineer," has fallen, in blaming architects, in a wholesale way, for what architects have but seldom anything to do with, as "a Civil Engineer" must well know: we allude to the placing of service pipes to houses. Even the houses themselves are but too often built without consulting any architect, far less arrangements made as to water-pipes; and, considering that water supply is an engineering affair, as "a Civil Engineer" naïvely admits, it would be a little less incorrect had he blamed the civil engineers than the architects in the stupid way he has done. "Knowing," as he, doubtless quite truthfully, observes, "that winter will come once a year; knowing that with winter comes frost; knowing that frost causes ice; knowing that water expands when converted into ice; knowing that lead and iron pipes are not elastic; knowing that one or other must give way, and that it will be the pipe; the simple means adopted is to place the service pipes so that the water in them is not exposed to the cold, and therefore cannot freeze." And this immense amount of knowledge leads "a Civil Engineer," correctly and logically, to a further conclusion, which he might have obtained from a very recent number of the *Builder*, stripped of all the learning through which alone he could at last arrive at it,—namely, that this annual disaster may, in our mild climate, be easily prevented, by laying the service-pipes from the main at a sufficient depth under the surface, and further protecting them along the walls. A tin or wooden casing, stuffed with sawdust, he suggests as a good way of protecting the service-pipe where other protection is deficient.

SHIPS IN ARMOUR.—It has been decided to increase the number of our iron-cased ships of war without more delay, according to the *Globe*; and letters, therefore, have been issued to private firms, inviting tenders for the construction of two immense vessels of the "ram" class. Each ship will be 280 feet long, and will carry about 4,000 tons. The vessels are to be very similar in construction to the *Resistance* and *Defence*, now nearly complete. They are to be plated with iron slabs fore and aft. The angular principle will not be adopted in this instance, notwithstanding all that has been done and said upon the subject.

VALUE OF BAROMETRICAL INDICATIONS.—Admiral Cator recently reported to the National Life-boat Institution that, at Cullercoats, near Shields, in the beginning of October last, the fishermen had expressed to him their gratitude for the barometer which the Duke of Northumberland, president of the Institution, had presented to them. A fearful gale from the westward had about that time somewhat suddenly sprung up. The fishermen were preparing to go to sea. Some of them observed the fall of the barometer, while others disputed its utility and value, and even treated it with derision. The majority of the fishermen, however, decided that they would not go to sea while the barometer was falling, although it was quite fine at the time. A few hours afterwards a terrific gale of wind from off the land came on, when they expressed their firm conviction that every one of them would probably have perished had they gone to sea, as most assuredly they would have gone, in the absence of the barometer.

CURIOUS DISCOVERY AS TO SPIRALS.—It is a well-known fact that certain plants tend to spiral action, some to the right others to the left. We are of opinion that a new light will be shed upon these tendencies by a discovery announced by the foreign secretary of the Royal Society at their meeting last week. The discovery referred to has been made by Professor Wiedemann in a series of interesting experiments on the magnetisation of iron and steel. The professor has discovered that, if an iron wire be twisted during, or even after, the passage of a voltaic current through it, the wire becomes magnetic. When the wire is twisted in the manner of a right-handed screw, the point at which the current enters becomes a south pole: in the opposite case it becomes a north pole. If, during the passage of the current, the wire be twisted in opposite directions, the polarity changes with the direction of the twist: if it be twisted in opposite directions after the interruption of the current, the magnetism produced by the first twisting rapidly diminishes.

A SCHOOL OF ART FOR HERTFORD.—A crowded meeting was held in the Townhall, Hertford, on the 18th ult., under the presidency of the mayor (Mr. J. Gripper), to consider the propriety of establishing a school of art for Hertford and its neighbourhood, in connection with the Committee of Council on Education. The Right Hon. W. Cowper, in moving the establishment of a school of art at Hertford, said,—We have heard of many instances in which artisans, from their knowledge of drawing, have very greatly improved their positions; and it is quite clear that persons who are employed in building in any of its phases—whether as architects, surveyors, bricklayers, or carpenters—must be greatly benefited by having the power of drawing clearly and systematically the objects with which they are conversant, and the knowledge which is necessary to understand the drawings of others. How very few there are who take very much pleasure in artistical buildings! But we have in this town a proof of good taste in the shop which Mr. Raymond has produced in Railway-street; and every one will admit that such a building differs widely from the ordinary brick wall with square holes for the windows and doors. One great object for which schools of art have been fostered is the desire to raise the taste of the community at large; and we have of late years seen a vast improvement in the ordinary decoration of houses. The papers upon our walls, all our articles of furniture, have been greatly improved; and all this is, I believe, very much attributable to these schools. They have told upon the manufactures of Manchester, upon the hardware of Sheffield, and upon the potteries of Staffordshire. I believe that the remarkable way in which our English china has got ahead of the French and German china is very much owing to the fostering aid of the School of Art at Stoke-upon-Trent. The resolution was adopted, and, on the motion of Sir M. Farquhar, M.P., a subscription was entered into to defray the preliminary expenses.

THE COVENTRY SCHOOL OF ART.—Lord Leigh has offered, through the local School of Art, two medals,—a gold one for the best fancy ribbon, in style, make, and harmony of colour; and a silver one for the best six designs for ribbons; and Lady Leigh, according to the local *Herald*, is about to give a prize for the best plain ribbon, having special reference to cheapness as well as quality.

PETROLEUM, OR MINERAL OIL, IN OHIO.—This useful material has been discovered, according to the American *Gaslight Journal*, in another of the (dis) United States. Two hundred rock-oil wells, as they are called, have been sunk in Warren County, Ohio, of which fifty to seventy-five are said to pay well. Thirteen steam-pumps are in operation, and more are being set up. The average yield is 3,000 gallons per day, and more wells are being sunk.

STOCKBRIDGE CO-OPERATIVE SOCIETY.—The members of this new co-operative society held their first quarterly meeting a few days ago. The accounts showed a clear profit on the quarter's business of 63*l.*, which enabled the committee to return to their members 1s. in the 1*l.* on the amount of their purchases from the society's stores, and add 1s. 6d. to each 1*l.* share, making a total profit of 12s. 6d. on the quarter, being at the rate of 50 per cent. per annum. The society commenced in a grocery establishment only, under the management of Mr. Jas. Hoult, but have since added drapery and butchering. The members expressed satisfaction at the result of the first quarter's operations, and thanks were awarded to the chairman and committee for their services. New shares, to the number of 140, were taken; and the increase of custom having been so rapid that the stores of the society were inadequate, it was agreed to look out for a site for the erection of new stores.

DEATHS IN A WELL.—Two well-sinkers have met their deaths in a well they were sinking on a branch line from the West Midland Railway into Stourbridge. The well was for the purpose of feeding a stationary engine. One of the men had descended to drive in some stays to support the trunk of the pump. He had not been long there, before he gave a signal to the men above to pull him up, as there was foul air. He was raised some nine or ten yards, when he fell from the frame on which he was to the bottom. The other man descended to his aid, but had not been down a minute or two before he also, of course, gave the signal to be raised. They had scarcely begun to do so before he fell back from off the frame on which he had been lowered. Means were resorted to in order to disperse the foul air, but it was about an hour before the two unfortunate men were raised, when life was extinct. One of them had his skull fractured from the fall.

IMPROVEMENT IN STEAMERS, ESPECIALLY FOR RIVERS AND LAKES.—At a late meeting of the Scottish Shipbuilders' Association, in Glasgow, there was a long debate on the fitness of the American river and lake boats, with their one, two, or three stories, and hurricane decks, for our waters; when it was unanimously agreed that they were well adapted, and ought to be introduced here, as giving quadruple passenger accommodation, and protecting those on deck from the rain and spray. Mr. Robertson read a paper on the subject. The meeting were afraid lest these improvements should be measured in the tonnage; as, if so, it would add to their port charges and dues; when it was resolved to petition the Board of Trade to exempt all our decks from measurement, as the improvements would be for the benefit of the cheaper classes of passengers, who hitherto have had to endure so much suffering.

OPENING OF A NEW STATION AT DARLINGTON. The new station on the North-Eastern Railway was opened on New Year's Day. The station may be said to be divisible into three compartments. The north wing is composed of refreshment-rooms, a smoking-room, dining-room, second-class refreshment-room, kitchen and three bed-rooms, and other conveniences. The centre, which recedes 30 feet, comprises first-class ladies' and gentlemen's and general waiting-rooms, and booking and parcels' offices. The south wing is occupied by the telegraph and station-master's offices, porter's lodge, public conveniences, and two other rooms. The entire length of platform is about 560 feet. The contractors were,—for the excavation, brickwork, masonry, and plastering, Weatherley, of York; carpenter and joiner work, Kirby, of Scarborough; slating, Sanderson, of York; plumbing, glazing, and gas-fitting, Walsh, of Halifax; and painting, paperhanging, and decoration, Moore, of York. The clerk of the works was Mr. J. Edwards, of York.

MIDDLESBRO'.—The new hall of the North York Lodge of Freemasons, has been formally and officially opened. The hall is a plain building, and was designed by "Brother" John Dobson, of Newcastle.

INSTITUTION OF CIVIL ENGINEERS.—On the 22nd of January, Mr. Bidder, president, in the chair, the paper read was, "On the Rise and Fall of the River Wandle: its Springs, Tributaries, and Pollution," by Mr. Frederick Braithwaite. This history was compiled from a survey of the River Wandle, made early in the spring of the year 1853, from its rise at Carshalton, and at Croydon, 111 feet 2 inches and 123 feet 10 inches respectively above Trinity high-water mark, to its outfall in the Thames, at Wandsworth.

RIGHTS OF THE PUBLIC TO INLAND WATERS. The Statistical Society of Dublin have disapproved of a late Act of Parliament, doing away with the prescriptive rights of the public to fish in the lakes and rivers. It is to be hoped Mr. Cardwell, the Irish Secretary, will have the law amended on this point, and the Crown, as trustee of the people, hold inland navigable waters on the same footing as tidal. There must be no such injurious monopoly upheld, such as was not thought of in feudal times.

RAILWAY STATISTICS.—The traffic returns of railways in the United Kingdom, for the week ending January 12th, amounted to 445,900*l.*, and for the corresponding week of last year, to 448,050*l.*, showing a decrease of 2,150*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 191,712*l.*, and for the corresponding week of 1860 to 197,276*l.*, showing a decrease of 5,564*l.* The receipts on the other lines in the United Kingdom amounted to 254,188*l.*, and for the corresponding week of last year to 250,774*l.*, showing an increase of 3,414*l.*——It appears that, of a total of 334,000,000*l.* paid up as railway capital in various forms, 23,000,000*l.* (of which about 6,000,000*l.* were in course of expenditure on extensions and new lines) remained unproductive; nearly 5,000,000*l.* realized less than 1 per cent.; between 4,000,000*l.* and 5,000,000*l.* realized from 1 to 2 per cent.; 25,000,000*l.* from 2 to 3 per cent.; 25,000,000*l.* from 3 to 4 per cent.; 153,000,000*l.* from 4 to 5 per cent.; 74,000,000*l.* from 5 to 6 per cent.; 20,000,000*l.* from 6 to 7; and about 9,000,000*l.* from 7 to 10 per cent.

ELEMENTARY SCIENCE FOR ELEMENTARY SCHOOLS.—The aid offered by the Science and Art Department, in their minute of 2nd June, 1859, has not yet been taken advantage of by certificated teachers and others to the extent that is desirable; and Mr. J. C. Buckmaster, a certificated teacher, and an Examiner in the Royal College of Preceptors, who has long striven in behalf of some scheme to supplement the education given in our elementary schools, lately delivered two addresses on the subject, at the Society of Arts, before the United Association of Schoolmasters; which addresses have since been published, at the request of the Association, by Stevenson, Paternoster-row, in a fourpenny pamphlet, to which we would wish to point attention; since we cannot but feel that the education of the working classes would be greatly improved were the minute referred to brought into more extensive application; as it could easily be, for example, in the evening classes connected with mechanics' institutions and working men's colleges. With Mr. Buckmaster we believe that in every large town there are numbers of young men and apprentices who are well deserving of having their education improved; and it is precisely in the direction indicated by the minute in question, that of practical science and art, that this requires to be done. Mr. Buckmaster's addresses are explanatory of the aid given by the Department of Science and Art, under the minute of June, 1859, and on the industrial and educational importance of elementary science; and these addresses well merit a considerate perusal by all interested in the advancement of the working classes, and of the arts and sciences as well.

THE WOOD TRADE AT QUEBEC, 1860.—There were (says the *Eastern Counties Herald*) loaded at Quebec during the last season 1,056 vessels of 580,796 tons register. Of these, 161, measuring 76,221 tons, were foreign, the remainder British. The six largest shippers were:—

	Vessels.	Tons. Reg.
Messrs. E. Burstall & Co.	148	79,510
,, C. E. Levy & Co.	141	79,015
,, G. B. Symes & Co.	132	69,802
,, A. Gilmour & Co.	107	65,363
,, C. and J. Sharpler & Co.	112	52,484
,, Benson & Co.	83	39,379

The remainder by thirty-nine different parties.

IMPROVIDENCE OF THE BUILDING TRADES WORKMEN.—In a leading article on the recent distress from want of work during the frost, the *Morning Post* especially instances the bricklayers, masons, and others connected with the building trades, and asks,—"How comes it that the bricklayers, who withstood so well the pressure of the *strike* of '59, begin to starve outright if winter bring a few short weeks of seasonable *frost?* The very possibility of existence week after week, month after month, when work is tabooed, placed under the ban of a strike committee, proves that artisans are not in all cases improvident. If an artisan once concede the postulate that the future, being from its very nature uncertain, needs providing for; that existence, like the fly-wheel of a steam-engine, has its 'dead points,' only to be turned by force reserved; if it be deemed a good and wise and proper thing to lay aside a certain small fraction of present earnings to meet so improbable a contingency as might justify a trade-strike; would it not be a better, wiser, and in every respect more proper thing to set aside a fund specially destined to relieve the pressure, not improbable and very seasonable, of wintry frost and snow?"

TENDERS

For additions and alterations to Baptist Chapel, Charles-street, Leicester. Mr. H. J. Paull, architect, Burnley. Quantities supplied:—

		With concrete in Foundations.
Ruskin & Son	£869 0	£896 0
Wykes	709 10	741 10
Groves	689 0	704 0
Osborne, Brothers	685 0	724 0
Collins	645 0	677 12
Cox	645 10	
Russell	621 15	652 15
Porter	618 0	643 0
Duxbury	597 10	622 0
Ashley	580 0	610 0
Hutchinson	575 5	605 5

For four new houses in the Lea-Pale-road, Guildford. Mr. Henry Peak, architect, Guildford. Quantities supplied:—

Contract, No. 1.—Excavator, Bricklayer, and Plasterer.

Pollard	£704 5 6
Loe	669 0 0
Goff	649 0 0
Garnett	627 0 6
Mason (accepted)	584 0 0

Contract, No. 2.—Carpenter, Joiner, Slater, and Mason.

Moon	£645 0 0
Pollard	631 1 10
Loe	626 0 0
Garnett	616 0 0
C. Smith	595 10 0
Patrick	580 10 0
Nye	579 5 0
Strudwick	562 0 0
West (accepted)	497 0 0

Contract, No. 3.—Plumber, Glazier, Painter, Grainer, Smith, and Bellhanger.

Randall	£158 6 0
Pollard	147 1 0
Loe	126 0 0
Sturt	125 19 0
Batty	123 18 0
Nye	122 8 0
Edmead	119 19 9
Cooke	118 3 0
Gyatt	116 10 0
Miller (accepted)	114 7 3
Total	£1,195 7 3

For the heating apparatus, of the conservatory in the new garden of the Royal Horticultural Society, Kensington-gore, W.:—

Bacon	£1,839 17 0
Dennis*	1,745 0 0
Taylor & Sons	1,551 14 2
Potter	1,497 14 6
Ormson	1,490 0 0
May	1,480 0 0
Jeaks	1,357 18 0
Smith	1,350 0 0
Barwell & Co.	1,321 0 0
Cottam & Co.	1,307 0 0
Taylor & Sons	1,300 0 0
Shanks and Son	1,250 0 0
Hood	1,216 0 0
Weeks & Co.	975 0 0

* Including gratings, which are not in the other tenders.

For Glamorganshire Lunatic Asylum. Mr. Richard Bell, architect, London. Quantities supplied by Mr. E. J. Austen:—

	Stone Externally.	Brick Externally.
James & Price, Cardiff	£28,500 0	£29,215 0
,, Church	1,885 0	
G. Myers & Sons, London	27,904 0	27,600 0
,, Church	1,410 0	
Hardwick & Sons, Birmingham	25,700 0	25,920 0
,, Church	1,480 0	
Wm. Baker, Bristol	25,505 0	27,132 0
,, Church	1,634 0	
Webb & Sons, Cardiff	22,550 10	22,788 10
,, Church	1,335 0	
Barnsley & Sons, Birmingham*	21,288 0	22,198 0
,, Church*	1,400 0	

* Accepted.